

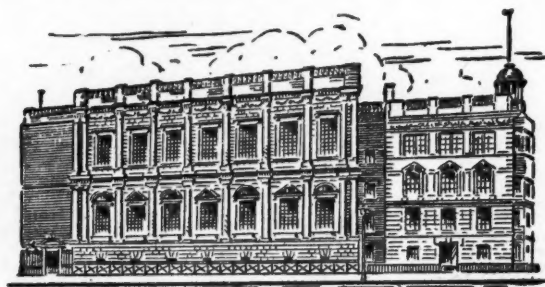
Vol. LXXIX

AUGUST, 1934

No. 515



JOURNAL



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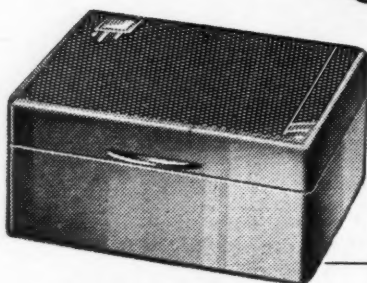
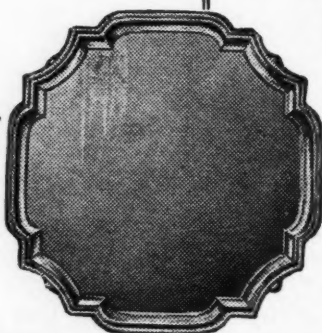


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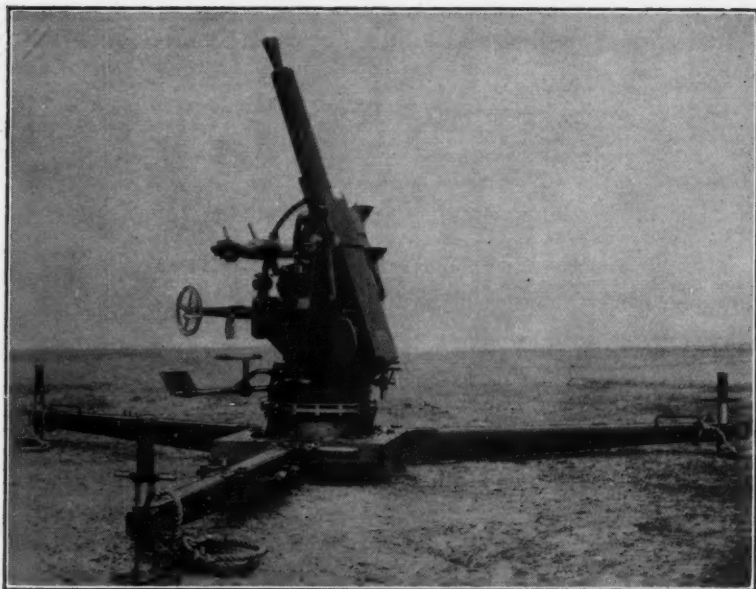
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For Members and their friends, there are private entrances to the Museum from the Institution.

H.M. Forces in uniform are admitted free at the public entrance.

Admission to the general public is 1s.; Wednesday and Saturday after Noon, 6d.

SECRETARY'S NOTES

August, 1934.

Council

General Sir Felix Ready, K.C.B., C.S.I., C.M.G., D.S.O., has been elected to the Council in succession to Lieutenant-General Sir J. R. E. Charles, K.C.B., C.M.G., D.S.O.

Major-General C. P. Heywood, C.B., C.M.G., D.S.O., has succeeded Lieutenant-General Sir Ivo L. B. Vesey, K.B.E., C.B., C.M.G., D.S.O., as War Office Representative on the Council.

Vice-Admiral R. M. Colvin, C.B., C.B.E., has succeeded Vice-Admiral Sir Barry E. Domville, K.B.E., C.B., C.M.G., as an *ex-officio* Member of the Council on his appointment as President of the Royal Naval College, Greenwich.

New Members

The following officers joined the Institution during May, June and July :—

ROYAL NAVY.

Lieutenant A. H. P. Noble, R.N.
Midshipman A. R. Hezlet, R.N.
H.L. de L. Verry, late Lieutenant, R.N.V.R.
Lieutenant-Commander I. H. Bockett-Pugh, R.N.
Lieutenant R. G. Norfolk, R.N.
Sub-Lieutenant H. N. Custance, R.N.
Lieutenant R. F. Leonard, R.N.
Lieutenant A. D. Robin, R.N.
Midshipman J. W. R. Spedding, R.N.
Commander F. R. Garside, R.N.

ARMY.

Lieutenant E. W. Barron, 12th Royal Lancers (ret.).
Captain J. D. James, M.C., The Wiltshire Regiment.
Major J. L. Williams, 4th Battn., The Welch Regiment (T.A.).
Captain G. A. D. Young, R.E.
Lieutenant-Colonel W. E. Cowlshaw, M.C., 5th Battn., North Staffs. Regiment (T.A.).
2nd Lieutenant T. J. Hutchinson, 4th/15th Punjab Regiment.
Captain S. N. Turner, T.A. (R. of O.).
2nd Lieutenant J. C. P. Ellison, R.A. (T.A.).
2nd Lieutenant N. R. G. Bosanquet, Royal Welch Fusiliers.
Lieutenant P. D. Sandbach, 12th Royal Lancers.
Captain J. G. Stewart, M.C., M.B., New Zealand Medical Corps.
Lieutenant J. A. C. d'Apice, The Royal Berkshire Regiment.
Lieutenant H. du P. Finch, The Royal Berkshire Regiment.
Lieutenant A. B. Ruck, Royal Signals.
2nd Lieutenant M. Delme-Radcliffe, R.E.

ROYAL AIR FORCE.

Flight Lieutenant W. T. Holmes, R.A.F.

Flight Lieutenant F. F. W. Hall, R.A.F.

Flying Officer M. F. D. Williams, R.A.F.

Members Joining in October

The attention of potential Members is invited to the fact that if they join on or after 1st October of the current year, they are not called upon for any further subscription until January, 1936.

Special Facilities for Junior Officers

The attention of Members is invited to the special facilities which now exist for Junior Officers to join the Institution :—

Commissioned Officers of the Home, Dominion, Indian and Colonial fighting Services and their Reserves, of three years or less seniority as such ; Midshipmen, R.N., R.N.R. and R.N.V.R. ; and Naval, Military and Air Force Cadets, are admitted to Membership without Entrance Fee on payment of the first annual subscription of £1 5s. Membership dates from 1st January.

Gold Medal Essay (Naval) 1934

The following essay has been received :—

" He who puts on his armour does not boast as he who takes it off."

Lecture Programme

The Programme of Lectures for the 1934-1935 Session is being prepared, and copies will be sent to Members in due course.

MUSEUM**Special Exhibition of Aircraft Models**

The Special Exhibition of Aircraft Models depicting aviation from earliest times to the present day is now open, and it is hoped to continue it until the end of the year. The models are arranged in eight dioramas, and the sections show :—Early Experimental Types and Pioneer Aircraft ; Royal Flying Corps ; Royal Naval Air Service ; Fleet Air Arm ; Coastal Types ; Army Co-operation ; Bombers and Fighters ; the Development of Imperial Air Communications.

Collection of Medals

The Institution already possesses a large and varied collection of medals, but offers of additions to the collection will be most welcome. Details of such offers should, however, be communicated to the Curator before medals are sent.

Regimental Badges and Buttons

The Institution's collection of Regimental Badges and Buttons has been re-organized and re-arranged. It is desired to complete the collection, and contributions from Members for this purpose would be very much appreciated. The Institution also has a certain number of spare badges which could be exchanged for others or sold to collectors.

Naval Badges and Crests

It is desired to develop the Institution's collection of Naval Badges and Crests, and gifts of these of boat and note-paper sizes respectively will be greatly appreciated.

Additions

- (8697)
- (8698) Collection of badges of the South African Expeditionary Force; photograph of the Regimental Colour, Cape of Good Hope Regiment.—Given by Major E. B. Walker.
- (8699) R.A. patrol jacket, 1891-1904.—Given by Lieut.-Colonel H. G. de Watteville.
- (8700) Madras Light Infantry shabracque; two company Colours of the Grenadier Guards, date unknown.—Given by the Hon. Mountjoy Fane.
- (8701) Fragment of a boat's ensign found at Cape Felix, King William Island, by the McClintock Expedition in search of Franklin.—Given by Mrs. K. Hoar.
- (8702) Collection of shako and helmet badges.—Given by A. Ridout, Esq.
- (8703) Watch-chain charm in the form of Wellington's coffin with a figure of him inside.—Given by E. Lacy, Esq.
- (8704) Headdress of the West Indian Regiment, 1900-27.—Given by the Hon. Mr. Justice Clark.
- (8705) Collection of belt buckles.—Given by A. Ridout, Esq.
- (8706) Cap worn by Sir Douglas Haig during the Great War.
- (8707) Kepi worn by Marshal Foch during the Great War. The above two items given by H.R.H. The Prince of Wales.
- (8708) Collection of Indian weapons.—Given by Lady Carr.
- (8709) Full-dress uniform, 1st Sikhs.—Given by Surgeon-Captain M. H. Knap, R.N.
- (8710) Lock of the Duke of Wellington's hair.—Given by Colonel C. H. Colvin.
- (8711) Headdress, 19th Lancers, 1816-21, and sabretache of the 19th Light Dragoons.—Given by the Executors of the late Miss Elmslie.
- (8712) Headdress of the Royal Horse Guards, Waterloo period.—Given by the Rev. P. Sumner.
- (8713) Photographs of the first sea flight, 1910.—Given by J. Bellis, Esq.
- (8714) Model of Autogiro C.30.—Given by the Cierva Autogiro Co.
- (8715) Full-dress tunic and mess jacket, 51st Madras Native Infantry.—Given by Captain O. de Wet, R.N.
- (8716) Wire cutters, used in the Great War.—Given by Captain E. Martin.
- (8717) Collection of portraits of British Admirals.—Given by Miss M. Moore.
- (8718) Nine commemorative medals of Wellington's victories; Spanish coin recovered from H.M.S. "Lutine."—Given by Mrs. A. Hauseman.
- (8719) Cocked hat worn by General Blommert, 1831.—Given by the Rev. Sweet Escott.
- (8720) Engraving: "Etude pour le plafond de Whitehall."—Given by H. Collyns, Esq.
- (8721) French soldier's small book and ammunition, Franco-Prussian War.—Given by Lieut.-General Sir G. F. Ellison.
- (8722) Model of a Handley-Page "Hyderabad" night bomber.—Made and presented by C. B. Elliot, Esq.

- (8723) Bricks and plaster from the Black Hole of Calcutta.—Given by T. M. Munro, Esq.
(8724) Nelson mug.—Given by Miss Macaulay.
(8725) Some of Nelson's baby clothes.—Given by Mrs. J. A. Barratt.
(8726) Engraving of Sanna's Post.—Given by Lady Alderson.
(8727) Flint-lock ammunition.—Given by the Rev. G. Hawkes Field.
(8728) Engraving of Nelson's burial.—Given by Mrs. E. Mond.
(8729) Design for a Nelson monument.—Given by Mrs. E. Mond.
LOAN.
(3605) Three field orders written by the Duke of Wellington.—Lent by Miss Lowry Cole.

Attendance

The amount taken for admission during the past quarter was :—

£114 19s. od. in May.
£96 16s. 6d. in June.
£113 13s. od. in July.

Purchase Fund

This Fund has been opened for the purchase of new exhibits. The Council hope it will receive the support of Members interested in the Museum.

OLD MILITARY UNIFORMS AND COLOURS

The Council of the Royal United Service Institution, in consultation with the Council of the Society for Army Historical Research, have decided that it is desirable to compile a summary of information on old Military Uniforms, Equipment, Standards and Colours of the British Army, with a notation as to where such information can be found.

It is hoped to arrange for this project to be carried out mainly by voluntary effort, but it must necessarily involve a certain amount of clerical work, card indexes, and postage, the cost of which is estimated at about £50 per annum. This cannot be met from the normal funds of the Institution or of the Society.

It is hoped, therefore, to raise this sum by individual subscriptions from those interested in the subject.

Subscriptions, however small, will be gratefully acknowledged. Cheques and postal orders should be made payable to "R.U.S.I. Uniforms A/c.," crossed, and sent to the Secretary, Royal United Service Institution, Whitehall, London, S.W.1.

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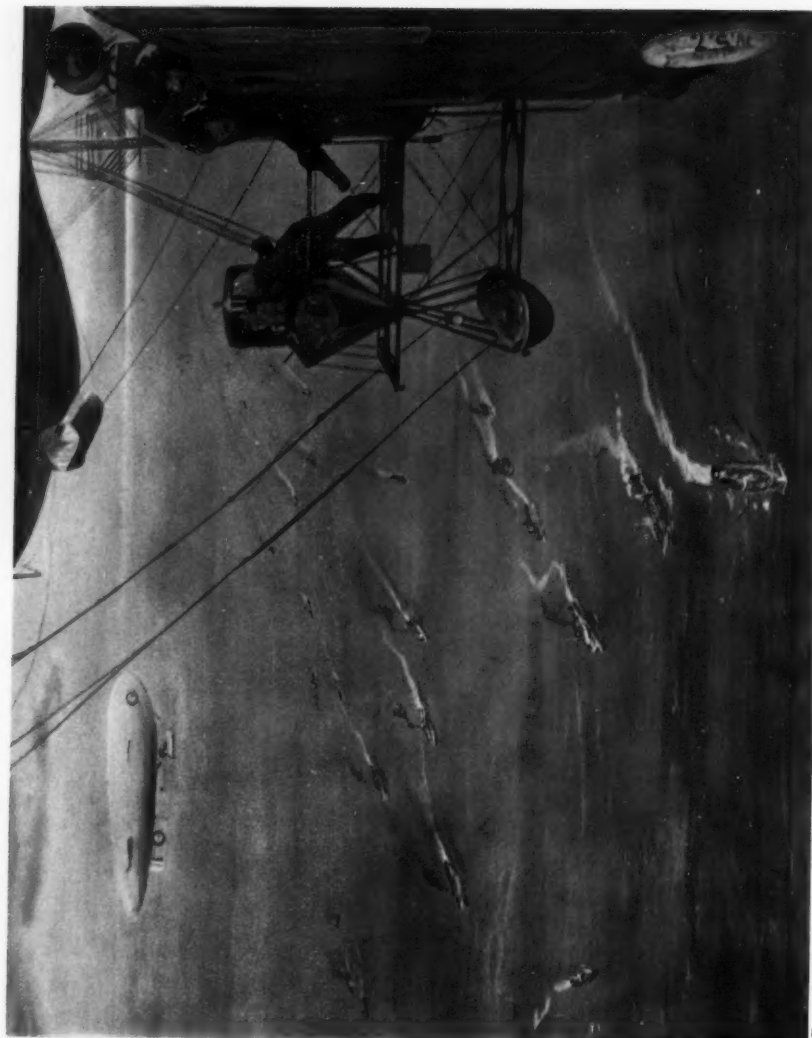
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*From the picture in the Imperial War Museum
By Sir John Lavery.*

A NORTH SEA CONVOY, 1918 ESCORTED BY SMALL AIRSHIPS

*By courtesy of the Oxford University Press and
The Medici Society, Ltd.*

THE JOURNAL
OF THE
Royal United Service Institution

Vol. LXXIX.

AUGUST, 1934

No. 515.

[Authors alone are responsible for the contents of their respective Papers.
All communications (except those for perusal by the Editor only)
should be addressed to the Secretary, Royal United Service Institution.]

**THE DEVELOPMENT OF AIRCRAFT AND ITS
INFLUENCE ON AIR OPERATIONS**

By SQUADRON LEADER R. V. GODDARD, *p.s.a.*, R.A.F.

On Wednesday, 21st February, 1934.

AIR MARSHAL SIR H. C. T. DOWDING, K.C.B., C.M.G., in the Chair.

THE CHAIRMAN, in introducing the Lecturer, said that he possessed exceptionally varied experience. He had served in the Grand Fleet and in the airship section of the Royal Naval Air Service during the War; afterwards he did a two year's engineering course at Cambridge University, followed by research work at the Imperial College of Science and Technology, graduating as an engineering specialist in the Royal Air Force. In 1925 he was Instructor to the Cambridge University Air Squadron. He commanded a bombing squadron in Iraq for two years, and took part in the operations against Sheik Mahmoud. He was now attached to the Royal Naval Staff College.

LECTURE.

THE influence of the development of aircraft on land and sea operations has manifested itself in enhanced vision, striking power and co-ordination of effort; but the object of this lecture is to review the influence of that development on air operations. The history of air operations in Iraq, on the North-West Frontier, at Aden, in Jehol, in Morocco and elsewhere during the last fifteen years is one which indicates increasing confidence in the utility and reliability of, and in the economy effected by, aircraft. Nevertheless, their development in its wider sense did not greatly influence the conduct of these operations. How, then, is it likely to affect operations in the future?

There are three principal forms of warfare—territorial invasion, economic starvation, and internal disruption. Hitherto invasion has been essentially one of the roles of armies, while starvation has been inflicted by navies and armies acting in conjunction. So far as armed force is concerned, internal disruption is achieved mainly by air bombardments. This latter method of direct action on the economic life of a nation is commonly regarded as being an air operation, as distinct from air co-operation. This seems to be a narrow view, for the future may prove that air operations can be employed by a nation with organized air resources as the spear-head of invasion, or as the net and barb of sea power. We must, therefore, consider not only the influence of the development of Service aeroplanes on air bombardment, air fighting, and air control, but also the influence which the development of aircraft generally will exert on the speed of action and economy of force attending the employment of air power as a primary means of bringing about any strategic result in the future.

The material characteristics of warfare are capabilities of offence, defence, ubiquity of action, and mobility of equipment. In these respects the following strictures are said to limit the application of air power:—

- (1) Air bombardment and fire power are insufficiently destructive;
- (2) Air forces cannot occupy and defend positions;
- (3) Aircraft are incapable of ubiquity due to limitations of range and of lighting control;
- (4) Air equipment requires land and sea communications and lacks air mobility.

These limitations are all being affected by developments which may be considered under four heads: economy of *form*; economy of *weight*; economy of *fuel*; economy of *maintenance*. Our conclusions upon the influence of the development of aircraft on air operations must rest upon prospects of progress under these heads as related to all forms of aircraft regardless of present predilections in types.

DEVELOPMENT.

ECONOMY OF FORM.

An aircraft is of an economical form when the minimum fuel is wasted in air disturbance. Without considering other characteristics, it is obvious that ideal economy of aircraft form is approached by the rigid airship, followed next by the completely smooth monoplane, while the rotating-wing aircraft comes last. This is easy to understand: the airship is virtually non-resistant except for skin friction; the monoplane has a minimum *parasitic* resistance, and the dynamic disturbance set

up by its wing is a minimum for its designed speed ; and the rotating wing, whether it be of the windmill or paddle-wheel type, suffers from an inherent disability—the inescapable range of air speeds which the blades experience when moving forwards and when moving backwards is incompatible with wing-efficiency. Nevertheless, the autogiro is already a highly efficient flying machine with capabilities of speed, manœuvre and landing which are likely to place it first in favour wherever economy of alighting space is important. Economy of form is, therefore, not only a matter of air resistance ; it must be related to function, and we may conclude that each of the three types of aircraft—airship, aeroplane, and gyroplane—attains to pre-eminence of form efficiency in its appropriate sphere of application. Already the fundamental lessons of form refinement are well applied in aeroplanes, but there is still scope for further economies to give improved performance.

It is not possible to define under the heading of *form* the limitations which development will place on these types ; it is, however, possible to limit one type so far unnamed. The helicopter, as distinct from other gyro types, is debarred from forward flight because its wings are not freely articulated and because its power is coupled to its wings¹—it might be useful in substitution for kite-balloons but never for locomotion.

ECONOMY OF WEIGHT.

An aircraft is of an economical weight when the structure bears the least proportion to the load. Without going into the theories of structures and aerodynamics, it is quite safe to assert that the cantilever construction of a monoplane is essentially heavier although less resistant than the correspondingly stouter girder structure of a biplane, while the peripheral lattice construction of a rigid airship is capable of developing the greatest strength/weight ratio of any aircraft structure. Now that the "lattice" principle of concentrating the structural strength economically and stiffly at the exterior surface is beginning to be employed in aeroplane structures, advantages in weight economy will accrue to the monoplane which are not equally applicable to the biplane structure. At the present time we find that the monoplane holds the field for speed and range, while the biplane excels in strength, manœuvre, weight-economy and safety in landing. But in spite of heaviness the monoplane has always competed with the biplane for ascendancy in every class of employment. Now, however, the new structural economy will exert its chief influence in the monoplane category, for the biplane has already exploited weight economy at the expense of economy of

¹ In the *cyclogyro* also the power is coupled direct to the paddle-wheel wings ; but as these revolve about "horizontal" axes the case is not the same as with the helicopter ; moreover the inclination of the paddle wings is variable.

form. We may thus conclude that structural economy will lead to increased load capacities and greatly increased ranges, especially in the monoplane class, and that bombing power and fighting power will be enhanced thereby.

Passing from structural *refinement*, let us now consider structural *expansion* and its effect on weight economy. The strength of aircraft structures is concerned with two things: (a) supporting the live loads set up by the air forces on the external surfaces, and (b) supporting the weight and inertia forces due to the dead loads of structure and freight. In larger structures it is possible to use material more efficiently, but there comes a time when any further increase in dimensions causes an increase in the structure-weight proportion of the dead-loading which is not economical. The weight begins to increase faster than the increase in lifting capacity for the same speed; thus speeds and powers are correspondingly forced higher, increasing in turn the structure-loads, particularly in the landing chassis. It is this last fact which accounts for the largest aeroplanes being seaplanes where alighting loads are distributed and speeds of alighting are not so restricted by space considerations. Thus we may conclude (a) that structural progress will lead to enhanced performances by making aeroplanes of existing dimensions operationally more efficient for load-carrying, offensive power, speed, and range; and (b) that there is not so much to be gained by spectacular increases in dimensions of the various types now in use because of weight-economy restrictions upon large cantilever structures.

These arguments apply with equal force to the development of rotating-wing aircraft. The forward speed of the autogiro must always be less than the forward speed of a corresponding aeroplane because of the wing efficiency. By clipping the wings of the rotor increased forward speed may be obtained, but this would annul the essential merit of slow landing. Increasing the dimensions of a gyroplane necessitates a disproportionate increase in the dimensions of the rotor, with attendant increase in structural difficulties. Thus it seems that gyro aircraft will remain relatively small in size, and we need not anticipate the supersession of the fixed-wing aeroplane in the high-speed and large-scale classes.

At the other end of the structural scale there is the airship. Discredited in this country and mistrusted in the United States, the rigid airship still retains full confidence in Germany. The new Zeppelin "Von Hindenburg" will display qualities greatly exceeding those of the "Graf Zeppelin," whose performances in the past eight years have proved the soundness of Zeppelin design. It is the principle of flotation which the airship embodies that entirely alters the structural problem:

the designer is not confronted with a cantilever whose internal forces accumulate and multiply with each extension in span, but instead he has a body whose weight is evenly distributed and supported by the surrounding air and whose power is solely concerned with the forward speed of a *streamline* body. Incapable of economic construction in small dimensions, the airship excels in oceanic air-transportation on the great scale—a sphere of development as yet but nebulous.

We have already seen that increasing the dimensions of aeroplanes forces them on to floats, and it may be thought that it is only a question of development before flying-boats will have sufficient range to operate economically across the oceans, and sufficient strength and size to alight on the open sea. There is very little evidence in principle to show that flying-boats will ever compete economically with airships over ocean routes, while the idea that any flying machine will ever take off from a rough sea is surely fantastic.

A few words must be said on the subject of variability of wing form to give wings an extended efficiency over wider ranges of speed and inclination, or to increase control and safety. Progress in weight-economy will tend to reduce the necessity for slats by keeping landing speeds low. Smoothness of form, however, will always demand some device for "spoiling the air flow" at the moment of landing, and in this connection it is safe to assert that by the combination of reversible propellers, variable wing surfaces and wheel brakes, future developments in high performance aeroplanes will reduce the needs for skill, judgment and landing space—a point towards ubiquity.

Summing up from the weight-economy point of view, therefore, we may expect that the developments which lie in the near future will make little difference to the dimensions and characteristics of the three main types of aircraft, but that they will :—

- (1) enhance greatly the operational efficiency of aeroplanes, especially monoplanes, by extending their useful load capacity;
- (2) establish the utility and ubiquity of the gyroplane in all small-scale purposes where control at slow speed is advantageous; and
- (3) revive world interest in the air mobility of the airship.

The most striking results from the point of view of air operations will be : (a) the greatly extended bombing ranges which may be achieved by light structure monoplanes setting out in the overloaded condition so that only on reaching their objective and releasing their bombs will they develop the full reserve of structural strength normally available in peace; (b) the sacrifice of manoeuvre qualities in large fighters for the sake of gun-power; (c) the ability to locate and maintain personnel

in positions normally inaccessible; (d) increased intervals between landing grounds and bases.

ECONOMY OF FUEL.

The efficiency of an aero engine is dependent upon two things: (a) the degree to which the combustion gas is allowed to expand; and (b) the weight of the installation. The higher the initial combustion temperature and pressure, the less will be the initial volume of fuel and the greater the ratio of expansion, hence the greater the power for a given size of engine. But the raising of temperatures and pressures may eventually involve *more* weight for strength and cooling. It is possible that the petrol engine has already reached the zone of its highest efficiency. Perhaps it only remains to make the special fuels used for racing more generally available and to perfect steam-cooling and sleeve valves to bring the petrol-engine part of fuel economy to its zenith. But there are other possible accessions to fuel efficiency. Fuels with higher ignition temperatures are already in use in compression-ignition engines whose weight and reliability appear to be in the same class as the petrol engine. In this C.I. type the fuel consumption for a given power is greatly reduced and consequently greatly extended ranges may be obtained for the same fuel load. This further extension of range is of great strategic significance.

A difficulty with engines of all ordinary kinds is that they burn air, for the burning-value of air near the ground is much greater than the value of the same volume of air at great heights. Ordinary engines cease to be efficient when it is no longer possible to maintain, by supercharging, the normal air pressure. It is in regions above the levels of ordinary engine efficiency that rocket propulsion appears to have its application to aircraft—but not elsewhere. The kind of ultra high-speed aeroplane which will be suitable for operation in the higher levels of the stratosphere is only a futuristic vision at the moment; but it is safe to say that at lower levels the rocket would be at a considerable disadvantage in power efficiency as well as in other respects. The rocket plane does not seem likely to affect the influence of aircraft on air operations in the near future.

The efficiency of the engine, however, is only a part of fuel efficiency—propellers are also important. The introduction of a variable-pitch propeller brings nearer the realization of power efficiency at all speeds and angles of climb, and this is already making for increased operational capabilities.

Propellers are a source of limitation in themselves. It is not efficient to put more than a certain amount of power into one propeller; that amount depends on the diameter of the propeller and the speed of flight.

One of the limiting factors is the approach of the tip-speed of the blade to the speed of sound—the speed at which air particles become compacted and much more resistant. Thus we cannot look forward to the use of propellers absorbing thousands of horse-power. Engine units will remain reasonably small in size and power, and this is favourable to mobility. But whether or not the propeller is at maximum efficiency, fuel efficiency is not compatible with very high speed of flight, and it is therefore to refinement of *form* rather than to refinement of engines and propellers that we must look for economy of *speed*.

Considering the advantage which high-temperature fuels and variable propellers are about to confer, we may conclude that fuel-economy developments have still a great contribution to make to the ubiquity and mobility of aircraft in the near future, more particularly in range than in extravagant speeds. And it is to be expected that the enhanced efficiency of wing-mounted engines, cowled and faired, will soon free the pilot and crew, in all but the smallest types, from the operational disadvantages of an engine at the front of the fuselage.

ECONOMY OF MAINTENANCE.

The word maintenance is used here in the broadest sense and relates to the liability of aircraft to damage from every cause, and to the ease with which air power can be maintained in war. It is obvious that a nation with the best-developed air resources, routes and bases is in the best position for maintenance of air power. Hitherto wastage rates have been high, not so much because of total loss as because of damage and the impracticability of repair. With the introduction of improved structural methods the replacement of engines, tanks and structural parts may be greatly facilitated by air transportation. The ability to split up large structural components into convenient sizes for transport by aeroplane will greatly affect mobility of equipment and the practicability of salvage and reconstruction at the scene of disablement. In this connection and from the imperial point of view we must not overlook airships. The airship as a vehicle of air maintenance between bases seems to be discounted on the score of vulnerability in the air and unwieldiness on the ground, but our airship experience is far behind the experience of the United States and Germany. The vulnerability of a helium-filled or helium-protected ship carrying its own defensive fighters and proceeding to and from prepared bases is very different from the vulnerability of a Zeppelin engaged on the unsuitable task of air bombardment of a European capital.

In the war of 1914–18 the maintenance problem was chiefly concerned with depredations due not to enemy action but to inferior engines and aircraft, and to undeveloped capabilities in air pilotage and navigation.

In the future our maintenance problem is likely to be concerned more with casualties caused by the enemy than those caused by ourselves. This point is stressed because the 1914-18 wastage rates are sometimes quoted as a reason why aircraft can never be maintained in use on a large scale at any great distance from the source of supply. Thus we may conclude that developments in aircraft structural maintenance and air mobility of equipment, of supplies, and of personnel are capable of radically altering the economics of maintenance of air power.

THE INFLUENCE OF DEVELOPMENT ON AIR OPERATIONS.

In the preceding discussion it has been asserted that by the study of economy of form, economy of weight, economy of fuel, and economy of maintenance, very substantial progress in aircraft potentialities has been brought into the foreground of the future. These developments must profoundly affect commercial and civil aviation, air routes and air resources. The consequent inclination and ability of nations to provide air forces on a great scale with greatly extended destructive power, fighting efficiency and ubiquity of application, will place air power in a new relationship to the older means of asserting military force. Air power will be used, not only in the roles of economic bombardment and destruction of enemy air forces, but also in the neutralization of enemy land and sea forces, and in the interruption of land and seaborne trade, possibly before the supporting land and sea forces have arrived in the war zone.

The offensive power which can be achieved by the rapid concentration of long-range air forces at successive positions widely dispersed in space and by a nation which has developed mobility of air power on the grand scale, may soon prove to be of an entirely different character from what we are accustomed to consider practical at the present time. The speed of action and economy of force which can be realized by air power acting over long distances and striking only at targets which are worthy of the cost of bombardment, will be at once the result and justification of air development from the military point of view.

Without claiming that air bombardment and air gunnery are as yet highly accurate sciences, or that aircraft can ever be anything but vulnerable on the ground and wreckable on the sea, yet, because air power can be swift, economical and ubiquitous, it seems that any nation which once commits itself to a full policy of air development must come to regard war operations primarily as air operations, to be supported and assisted by land and sea forces.

DISCUSSION.

CAPTAIN E. ALTHAM, R.N., asked if the Lecturer could say what were the practical limitations in range of bombing machines to-day, and what were they likely to be in the reasonably near future?

THE LECTURER:

The limitation to the range of a bomber in peace time is the load that it is designed to withstand. A bomber is required in its structure to develop certain factors of safety beyond which there must not be overloading. In war time the load could be increased. The load of petrol might be increased and the aeroplane could go farther. In fact, we have seen a modified bomber—the Fairey monoplane—fly 5,500 miles without stopping, under satisfactory conditions. But I am afraid I cannot give a very satisfactory answer to the question. If it is simply a question of dropping one bomb on some particular place, it could be done over a very long distance, but for an effective bombing attack under conditions of war, the distance must be shorter. At present, bombing ranges are in the region of 500 miles; the developments I have spoken of will take them well into four figures within a few years.

THE CHAIRMAN:

There are only two points which I should like to touch upon. One of these concerns a remark made during the earlier part of the lecture that civil aircraft would not be of much use as bombers on account of their various limitations, such as lack of manoeuvrability, lack of performance, and particularly lack of capacity to defend themselves. While that is very true when the attack is against a country which is prepared to deal with attack from the air, the point I want to make is that against a country which is not prepared to deal with attack from the air, any form of flying machine which can reach the country and get away again is capable of being used to some extent as a bomber. It is true that it may not be able to carry a very formidable load, and possibly the accuracy of its aim may be very indifferent, but if it is a question of attacking a really large target accuracy of aim becomes of less importance. I repeat that against a country which has made no preparations to resist air attack any form of aircraft is a potential bomber.

One other point concerns the very important question of structure-weight ratio. Aeroplanes look very much the same now outwardly as they did ten years ago—our own aeroplanes do, at any rate. There has been some cleaning up of unnecessary excrescences, and undoubtedly they are far more efficient aerodynamically. But although their resemblance to those of an earlier period is considerable externally, internally they are quite different. We have recently passed over from wooden construction to metal construction; we have been at that work only for a comparatively few years. Metal construction is in its infancy, and it is now making very rapid strides. That is the most fruitful field of improvement in the aeroplane in the immediate future.

The customary votes of thanks to the Lecturer and to the Chairman were carried by acclamation.

SMALL AIRSHIPS IN THE WAR

By LIEUTENANT-COMMANDER T. DAVYS MANNING, R.N.V.R.

THE lecture on "The Development of the Fleet Air Arm," published in last quarter's JOURNAL, dealt almost entirely with heavier-than-air aircraft; but, in the course of the subsequent discussion, it was recalled that the small airship had played a very useful part in the naval work of the War. It seems appropriate, therefore, to place on record some account of the development of these lighter-than-air aircraft.

On the outbreak of the War we had only one or two old army airships, like the "Beta" and "Gamma," and a Parseval, bought from Germany. The latter used to patrol daily from Kingsnorth over the Channel, and was well known to residents on the South Coast between Dover and Brighton, more especially round Hastings and Eastbourne, as she generally came overland from her base and made the coast between these two towns. At the beginning of 1915, airships had to fight for their very existence, and in order to turn out a large number quickly, fuselages for B.E.2 C. aeroplanes were obtained and slung beneath envelopes of about 60,000 cubic feet capacity. These were the original "Blimps," known officially as the "S.S." (submarine scout) type. They had a single 70-h.p. Renault engine (tractor) with a pressure petrol feed; a small pump was fitted on the side of the car, and at intervals when the pilot saw by his gauge that the petrol in the gravity tank was getting low, he had to pump more in. This was sometimes forgotten with the result that the engine stopped and someone had to climb out on to the skids to swing the propeller in order to get under way again. As a rule there were two men in the car—the pilot and the wireless operator; as the former had to attend to the gas pressure in the envelope, it usually fell to the lot of the latter to balance himself on the skids and do the necessary swinging. These airships used to do patrols of about four hours duration at an average speed of between 25 and 30 knots.

About the same time another type of airship was evolved—the Coastal Patrol or "C" class. They had an "Astra Torres" type envelope of 180,000 cubic feet capacity, and a car made up originally of two Short seaplane fuselages with the tails cut off, placed end to end. Thus they had two engines, one at each end of the car. They

carried a crew of five, and it was only possible to change places by clambering along a foot-rail on the outside of the car, a somewhat nerve-racking performance! These coastal airships were rather clumsy as their envelopes were not streamlined, but they did excellent work from East Coast bases and from Cornwall. Later, in 1917-18, an improved Coastal appeared with a streamlined envelope; this was the C.* type.

An officer joining the Airship Branch of the Royal Naval Air Service in 1915-16 was first sent to undergo a course of free-balloon training at the airship station at Wormwood Scrubbs, thus providing his heavier-than-air friends with a never-failing source of ridicule! He then went to the Navigation School at Portsmouth. Having completed this part of his instructional course, the Probationary Flight Sub-Lieutenant was sent to a patrol station to learn to fly "S.S." ships. In 1917 this scheme was changed, and a central training station for airship work was established at Cranwell in Lincolnshire. To this all embryo pilots were sent after their balloon course, and here they learned to fly in the old Parseval airship. Having qualified, they were appointed to the patrol stations. A number of Midshipmen and Sub-Lieutenants, R.N., who joined the airship Service in 1915 eventually commanded their own stations or became captains of large rigid airships. Another batch of naval officers entered in 1917, whilst from time to time more senior officers were transferred from the sea Service to take over executive or flying duties.

During the earlier years of the War the bombs usually carried by "S.S." airships were only 16 to 20 lbs. in weight, which of course would have been of little use against submarines below the surface. On certain stations airships were not allowed to fly with live bombs on board at all. This may have been due to the fact that they were considered to be of no value for anti-submarine work; but in any case, the lift of the early type was not great and they could not have carried any great weight of bombs. With improvement in design and the growing realization of their value, by the middle of 1917 bombs had become a normal part of airships' equipment. Many pilots at this time believed that the value of airships lay not so much in their capabilities to bomb enemy submarines as in their being able to hover over an area in which a U-boat was lurking until patrol vessels with depth charges could be summoned to the spot.

In 1917 the "Zero" type superseded the old "S.S." ships. Warrant Officer Righton, of Capel airship station near Dover, evolved a new type of car which was boat-shaped and watertight, so that it could float on the surface of the sea. The first of these airships was built under the designer's supervision at Capel, and was known as the "S.S.O." or "Zero." She was so successful that a large number of the same type

were built. The same officer assisted in designing the twin-engined "S.S." airship, which will be described later. The "Zero" type carried a crew of three—the pilot, wireless operator, and engineer. The envelope had a capacity of 70,000 cubic feet; the engine was a 75-h.p. Rolls Royce (pusher); and two 100-lb., and in some cases two 230-lb. bombs could be carried. These airships were capable of doing long patrols: the record, I believe, was 50 hours 55 minutes. During the Spring and Summer of 1918 ten to twelve hours was a normal patrol.

At the beginning of the same year another type, the "S.S.P.," was produced. This had a 100-h.p. Green (pusher) engine. The car, which held three, was not watertight, and as the "Zero" was then on trial and proving so successful, only six of this class were built. Besides the B.E.2 C. type of car, there were also a few airships fitted with Maurice Farman fuselages and pusher engines.

The large "North Sea" class also came out in 1917; they were of 350,000 cubic feet capacity and carried a crew of ten. The envelope was of the streamlined "Astra Torres" type and the motive power was supplied by two large engines, either Rolls-Royce or Fiat. An airship of this type held the record for British non-rigid airships, having flown for 61 hours on end.

In 1918 the "S.S. Twin" ships were built. They had a capacity of about 90,000 cubic feet and a car with two 75-h.p. Rolls-Royce engines on outriggers. They carried a crew of five, and under favourable conditions could carry four 100-lb. bombs. It was in one of these ships that the designer of the "Zero" lost his life; he was taking her up on her trials when she caught fire in the air.

LIFE ON A PATROL STATION.

It may be of interest to give some description of life on a small airship station as it was in the summer of 1918. The commanding officer was either a Squadron or Flight Commander—in some cases a naval officer, but always a qualified pilot: it will be noted that I am using the old R.N.A.S. ranks; the Airship Service was so essentially naval and our attachment to the R.A.F. was of so short a duration that they come to mind more naturally than the new ranks.

The first lieutenant would be either a naval officer or an R.N.V.R. officer; his job was very similar to that of the executive officer of a big ship—he was responsible for the whole administrative side of the station, and he had to keep the peace between the various departments. He had nothing to do with the flying except that he was expected to provide hands at all times of the day for landing parties: no easy task when the departmental officers all wanted men as well. The senior

flying officer (S.F.O.) was responsible for the handling of ships on the ground; a job which required a good deal of skill especially in high winds. Airships, even the small "S.S." type, could be very unpleasant to handle in strong winds or in very hot weather, as the air currents round the sheds and windscreens were sometimes the cause of them becoming almost unmanageable. The S.F.O. was also responsible for arranging the flying programme and was the senior pilot on the station.

The departmental officers included the heads of the Meteorological, Engineering, Electrical, Armament, Gas, Photographic, and Store Departments. In 1918, too, most stations had Intelligence Officers, although this department was only developed late in the War. The Intelligence Office was a strange place with the walls covered with charts and silhouettes of ships and aircraft, and with large steel chests containing confidential books, on the floor. The I.O. and his staff, if he had one, spent most of their time correcting codes, decoding signals and writing up all manner of reports of patrols. He had to plot all reported positions of enemy submarines, and according to his results the patrols were arranged. He kept a record of all convoys, both cross-Channel and ocean-going, and did his best to see that they were provided with escorts.

Patrols usually started about an hour before dawn, the second lot of airships going out about 8 a.m. Directly the first patrol returned they at once got ready for the next turn of duty at noon; and so it went on until the last airships landed at dusk. The routine varied on different stations, naturally, but during that summer it was usual for pilots to go on patrols lasting about eight hours. An airship going up before sunrise was sent off as "heavy" as possible so that there need be no waste of gas when the day grew warmer; the ballonets were full of air, and sometimes it was necessary to almost "fling" her into the air with the engine opened full out and elevators hard up. Landing on a hot day was sometimes a difficult business. On coming near the station the pilot would "ballast up" over a spot where he knew there were few bumps; that is to say, he would put the airship's nose into the wind, throttle down until the speed was enough to keep her stationary in the wind, then he would watch his manometer to see whether he was light or heavy. If the former, he would have to valve gas; in the latter case he would let go water ballast until the airship was in equilibrium. He would then make for the landing ground where the landing party were awaiting him. On coming over them the trail rope would be dropped and the airship hauled down. In hot weather, however, it was not always quite so simple, because the gas would heat up over the landing ground, while if there was little wind, the pilot could not come in too

fast ; the result was that the airship rose rapidly and the whole ballasting-up process had to be done again. It was much easier to land in a fair breeze, when the airship could be forced down to the landing party by means of the engine and elevators. Generally speaking, if the conditions did not make it impossible to handle an airship on the ground, they could go on patrol, and in practice they were able to fly in quite bad weather. I remember an occasion when, having gone on patrol in moderate weather, the wind increased greatly. With the engine opened out full we kept in position about twenty miles to windward of the station for nearly two hours without being able to make any appreciable headway. When orders were received to return to base, we turned and were over the station in about ten minutes.

In fair weather it was possible to land an airship with a very small landing party, and the following incident will show what could be done. A certain airship of the old "S.S." type with a Maurice Farman aeroplane car, fitted with a 75-h.p. Rolls-Royce (pusher) engine, set out to fly from a South Coast station to a station in the Midlands. Soon after getting inland she encountered thick fog, and it was decided to return to the base. On going about, however, it was found that the fog now extended over a wide area, so the pilot decided to land and moor out in the open until the weather cleared. He came down very low until the skids were only just off the ground, at the same time slowing down until the airship was nearly stationary. He told his wireless operator and engineer to jump out, his intention being to go up again, ballast up until the airship was in equilibrium, and then come over the men again and drop his trail rope, which they would secure round a tree and then haul her down. There was little wind and there is no doubt that the scheme would have succeeded had not the engine suddenly stopped just as the crew jumped overboard. Without these men, of course, the airship was extremely "light," and consequently ascended to 5,000 feet before the pilot could check her. The wind took him out to sea and he could see the surface from time to time through gaps in the clouds. All the time he was endeavouring to restart his engine while keeping an eye on the pressure as the airship was still rising fairly fast. The pressure could not be allowed to get too high for fear of the envelope stretching and bursting seams, so he had to jump out on to the skids, give the propeller a few swings, and then get back into the car again and hold on to the gas valve. After repeating these activities for three-quarters of an hour he managed to start the engine and was able to take over the controls again. Eventually he landed safely, but the landing party were much astonished to find him alone in the car.

The Navy was a good friend to the Airship Service ; as an example there was a certain "Blimp" whose engine failed late on a February

afternoon when on patrol to leeward of her station. The wind took her through the Straits of Dover at a considerable speed, and it was growing dark ; however, a destroyer gave chase, and though the pursuit was being carried on in mined waters, she tried to take the airship in tow. This proving to be impossible, the pilot and the crew were told to jump overboard and were soon picked up and brought to port. Needless to say, the airship was lost. On another occasion a destroyer placed herself across the path of a drifting airship, but when the impact came the envelope fell over the ship's funnels and caught fire.

USES OF SMALL AIRSHIPS.

Airships have one definite advantage over heavier-than-air machines for patrolling purposes ; they can remain over one spot for several hours and watch an oil patch until patrol vessels come up with depth charges. They can accompany a convoy and keep station if necessary for many hours, whilst visual signalling is much easier for them than for other aircraft. Should the engine fail, an airship may be able to drift over the land and then make a free-balloon landing without doing a great deal of damage to herself. If necessary, they can be towed from a ship ; this was tested in 1916 when H.M.S. "Canterbury" towed "C.1" and transferred men and stores under way. A ship of the "S.S." type landed on the flying deck of the "Furious," and though it would not be possible to house an airship in a carrier, it would be quite easy to refuel her. On the other hand, airships are extremely vulnerable, and present large targets. It is always a source of wonder to me that German submarines did not remain on the surface and engage us with gunfire during the War.

It would seem probable that in any future war small airships would stand very little chance, as they would be easily destroyed by gunfire or by aeroplanes. They served a very useful purpose in 1914-18, and though they had very little to do with the actual destruction of German submarines, yet they certainly proved a most valuable measure of defence, for no convoy or single ship escorted by an airship was ever attacked. Even so, with the improvements made in aeroplanes, sea-planes, and flying boats, and in anti-aircraft gunnery, it would seem that the day of the small airship may be over. Whether the large airship can be used profitably for fleet reconnaissance purposes is a question that does not come within the scope of this paper.

MODERN INFANTRY DISCIPLINE

By A FIELD OFFICER.

IN every profession there must exist a discipline, the form of which will vary according to the requirements of that profession: thus the discipline of the monk differs widely from that of the sailor or tradesman. But each form of discipline is or should be equally effective when applied in its proper sphere: so it is that the discipline of soldiers, if it is to be the servant and not the master, must vary according to the duty the soldier has to perform in war. The discipline of the Pomeranian grenadiér is useless when skirmishing tactics are required: cavalry discipline may be unsuited to dismounted units, while the discipline of a mechanized unit will vary from that of horse or foot without being in any way its inferior. Consequently, when tactics change or, in other words, when the soldier's task in war is altered, there must automatically arise a need for modification in the system of his discipline in order that the type applied may be such as is best calculated to make the troops mentally attuned to their new tasks instead of handicapping them in the execution of those tasks. This problem confronts us now.

Fifteen years have passed since the end of the Great War, and at such a distance the fundamental changes in infantry tactics brought about by the War are to be seen with far greater clearness than they were in the years immediately following the Armistice.

Those changes are many, but, in so far as the infantry is concerned, the principal one is the final abandonment in the attack of linear tactics and big battalions with relatively weak support by fire, in favour of an overwhelming superiority of fire as an essential condition for success, the numbers of assaulting infantry being kept as low as possible, consistently with the occupation of the ground won. In other words, infantry no longer wins battles but confirms the ground won, and the lines of charging infantry so familiar and so victorious on every battlefield, from Blenheim down to recent times, have become a thing of the past. The first warning of their doom came in South Africa as far back as 1899; their death knell was sounded on the Aisne, and their fate sealed at Passchendaele. Soldiers and politicians alike agree that neither a regular nor a citizen army must ever again be subjected to such fruitless losses or committed to an undertaking which, against the

weapons of a modern defence, can only result in moral and physical defeat.

Of late so much has been written about the fire plan that the foregoing might be obvious enough to all serious students of infantry training had not certain influences been at work since the War, which have tended to divert attention from the problem, both in its tactical and its psychological aspect. It will be well to examine them briefly.

First, there was the "back to 1914" movement. In Sir Douglas Haig's last despatch we find the statement that the soundness of pre-war training was amply proved by the course of the War.¹ When we come to compare the Infantry Training and Field Service Regulations of 1914 with the corresponding manuals of to-day which, like the intervening editions, must have been based on the experience of the War, the statement seems surprising enough; but surprising or not, it must have been hailed with delight by the survivors of the pre-War days, who in 1919 found themselves engaged in reforming the infantry battalions of the British Army.

Let us recall the position; a very considerable proportion of those pre-War officers, to say nothing of the warrant and non-commissioned officers, had had the misfortune early in the War to be taken prisoners or to be so badly wounded that they did not return to the battlefield at all; others were taken for staff and training duties. In short, through no discredit to themselves, they had taken a small enough share in the actual infantry fighting, which by the end of the War was being carried on by the younger officers and officers promoted from the ranks, who formed the bulk of the junior officers doing regimental duty in 1919. The situation of the average infantry battalion at that time was one of great confusion—tactical, administrative and, it must be said, social; for who could say whether the standards of living maintained by the officer class before 1914 could be or ought to be maintained in the changed post-War conditions, more especially when the post-War boom began to collapse. For the pre-War, and therefore senior, officers the problem was psychological and it is not unfair to say that their reactions to it were, speaking generally, psychologically normal. "Back to 1914" was the cry. "Back to the training we understood, the system we understood. We have Sir Douglas Haig's own authority."

¹ "Then followed the experience of the Battle of the Somme . . . which showed that the principles of our pre-War training were as sound as ever . . . the longer the War lasted the more emphatically it has been realized that our original organization and training were based on correct principles. The danger of altering them too much to deal with some temporary phase has been greater than the risk of adjusting them too little."—Sir Douglas Haig's final despatch, para. 21 (p. 345 in Boraston's edition).

And so, though the tactical doctrines of 1914 could not be resurrected in their entirety, the psychology of post-War training was based, no doubt to a certain extent unconsciously, on the psychology of the training required to lead unbroken lines of men, men from whom education and initiative were neither forthcoming or required, up the slopes of Ramillies, down the slopes of Waterloo, over the plains of Omdurman or across the cornfields of the Aisne.

So training season has succeeded training season, with no prospect of a major war till the next generation, and the conditions of peace-time training have carried on the work begun in 1919. It is only at certain limited seasons of the year, namely in the period of about six weeks in all devoted to battalion and higher training, that all arms are exercised in co-operation; for the rest of the year the battalion, and more particularly the rifle company, is left to its own devices, yet it is at the same time encouraged to arrange realistic training to the exclusion of imaginary weapons and forces, and this leads naturally to the staging of situations in which rifle companies are given tasks which they are capable of undertaking without co-operation by other arms; the tasks of semi-civilized warfare, internal security or the fringes of modern battlefield, but in the nature of things not of the main battle.

It is indeed a rare enough sight to see any rifle company training at home which is more than a skeleton formation, for many causes have operated to divert not only men but also attention from this Cinderella of the battlefield. Mechanization, wireless and the like have claimed the time of the higher authorities; the machine gun, mortar, anti-tank platoon and intelligence section have priority within the battalion, so the result is that, as one skeleton formation looks vastly like another, the change in tactics required of the rifle company has been far from obvious at first sight.

Then there is the tattoo complex. The psychology of the tattoo is worth more than passing notice, but when it is recalled that the tattoo ground approximates in size far more closely to the old-fashioned battlefield than to the modern, it will be evident that old-fashioned battles will usually have to be staged in preference to scenes from modern war. Add to this the spectacular effect of the old-time uniforms and drill movements, and the extensive grip which the tattoo has on three out of four big commands at home, and it will be seen how strongly the influence of tattoos operates in a backward direction: not indeed to 1914, but to periods earlier still.

It is well to take stock of this state of affairs, for everything has combined to divert attention from the changes in infantry tactics brought

about by the War, and to base our post-War infantry training on pre-War psychology.

The next step is to investigate this pre-War psychology. Even in the 1932 edition of *Infantry Training*, Vol. I, we are told that the first and quickest method of inculcating discipline is close-order drill, which is here, as elsewhere in the manual, sharply distinguished from the drill incidental to physical training. This matter of close-order drill lies at the root of the whole problem, for it is the clue which takes us straight back to the origins of the standing Army, the New Model Army, from which the armies of Marlborough, Wolfe and Wellington descended in unbroken line. Those armies fought in close linear or column formations and on relatively small battlefields. The formations and the evolutions necessary to adopt or change them on the battlefield are the precursors of our close-order drill movements of to-day: column, line, and the turns and wheels necessary to assume the several varieties of each formation. It was, therefore, logical and natural that the training of those days should be directed to the perfection of the movements which the army was required to adopt on the battlefield; the march past in line was a test of the unit's mastery of its battle formation, no less and probably no more.

Here then is the issue. Despite the disuse of linear tactical formations on the battlefield, we still continue to practise them as a means of training for modern war. Why is this so? Warfare was no new thing when Cromwell trained his New Model Army, but there is no record that Cromwell practised the manoeuvres of Hastings or Agincourt as a means of instilling discipline. Sir John Moore relied for the discipline of his newer model army not so much on the standard drill of David Dundas, but on the more modern light infantry drill developed from it.¹

What then are the grounds on which close-order drill can be defended as the most suitable basis for the discipline and training of the infantry in 1934? Let the supporters of close-order drill argue as they like: they cannot dodge the plain fact that in order to produce the soldier trained for the requirements of the 1934 battlefield they find themselves advocating that as an essential preliminary he should be grounded in the admittedly obsolete tactical formations of 1734. Nor, when their attention is called to it can they fail to be struck by a development of close-order drill which presents a remarkable military paradox, the complete dissimilarity between our ceremonial and tactical organization: in

¹ "He saw that the drill of David Dundas was antiquated though new"; Fuller—Sir John Moore's *System of Training*, p. 224. Moore's training was based on the drill of Dundas, but Dundas' drill movements were, of course, used in battle by the infantry of the line of the day.

battle we clamour for fire power ; in conference we pay tribute to it ; on parade we hide away our fire power, the machine and Lewis guns, as if we were ashamed of them, and parade as four companies of cannon fodder. And echo answers, Why ?

Let it be conceded that there are many arguments in favour of close-order drill, and let it not for a moment be disputed that it has in the past proved an excellent method of instilling discipline. Close-order drill is still required to enable infantry to be moved from place to place, off the battlefield, in an orderly manner, so long as any infantry move to war on their feet, but for no other purpose, and if this is so column of route will suffice.

This is not the place to discuss the requirements of the Brigade of Guards in the matter of close-order drill, but the argument has been advanced that infantry of the line must be proficient in it so as to be able to take the place of a Guards battalion in London ; this argument may be countered by the argument that if a line battalion can learn club swinging or the pike exercise for a tattoo to perfection in three months, it could do the same with guard duties.

Next comes the question of drill as teaching obedience. This is a common and, at first sight, a very powerful argument in favour of close order drill, but let us look into it more closely. In close-order drill and similar exercises the effect is to produce, exactly on the word of command, some simultaneous physical action on the part of those under command, without necessarily any understanding of the object the commander wishes to achieve by ordering the movement in question to be carried out. Two hundred years ago this was a tactical requirement ; the implicit obedience and the unquestioning reaction to the commander's voice were essential, not only because every man was required to move shoulder to shoulder so as to preserve an unbroken line, but because the average soldier was neither sufficiently intelligent or sufficiently trustworthy to make any alternative system possible.

What is the case to-day ? In the first place, simultaneous movements by more than a pair of men are hardly ever necessary on the battlefield where, notwithstanding the principle of concentration of force, the dispersion of individual men is required. " Bunching " on the battlefield improves the targets for the automatic weapons of the enemy and, therefore, increases the expectation of casualties : " bunching " on the training area is justly condemned for this reason ; therefore, when training infantry for battle one must teach them not to bunch ; that is, never to move shoulder to shoulder. The gregarious instinct being as strong as it is, such training is bound to be a difficult matter. How then are we to defend any system of training for modern war which is founded upon squad drill.

Next there is the question of education. It is a subject of pride in the nation and in the Army that our standard of education is so vastly higher than it was a hundred years ago. Let us consider whether we, in the Army, make full use of this superior education and intelligence; whether, when possessing this invaluable asset, is it necessary to put our recruits through a course of training which aims at producing an unthinking physical reaction to a word of command in order to make sure that whether or not they understand, they obey?; and what is the value of such obedience on the modern battlefield? There is proof of this in every war since the French Revolution. Often the laurels have gone to undrilled but intelligent and well-commanded troops when they have appeared on the battlefield. The experience of Valmy has been followed by innumerable instances in the American Wars, the South African Wars, and the Great War in respect of the Dominion troops. The success of these last was not merely due to the presence of a large proportion of men whose lot had been cast in the country and not in the towns; in a great measure, it may be argued, it was due to there having been no time available to impose on them a training of unreasoning obedience in close formations. This is admittedly a contention very difficult to prove; but surely the evidence is strong enough to warrant experiments in this direction: not merely superficial efforts to inject "warcraft" or alertness on the battlefield into an unsound body of training which bears no direct relation to modern tactics; but experiments designed to eliminate such preliminary training which begins by discouraging a recruit from thinking independently, and if carried out intensively ends by destroying his self-confidence and readiness to act on his own, those very characteristics which made our Dominion soldiers such doughty fighters in the Great War.

The next thought which will no doubt occur will be the intense unpopularity which such views would meet among the general body of infantry non-commissioned officers. There is here a very real obstacle to reform, and it needs serious examination.

It is the practice in the British Army to invest warrant and non-commissioned officers with a full measure of responsibility in peace—a most necessary practice, seeing that from peace-time N.C.Os. will come a large proportion of officers in any future large scale war. It is curious, then, that there should be reluctance on the part of such men to experiment with any change which may lead to greater efficiency on the battlefield. Yet the answer may be a very simple one. Peace-time soldiering is an actuality: war a distant prospect. Every N.C.O. worth his salt, unless he is aiming at a commission in peace or at some trade or administrative employ, aspires to become Regimental Sergeant-Major. Now consider the relative importance of the Regimental Sergeant-Major

in peace and in war. In peace he exercises in practice a large measure of direct control over N.C.Os. in parallel with the recognized chain of command, much as the head of a service exercises control over representatives of his service in lower formations. He is king of the barrack square; drill and routine duties are his province, and he is judged by his performance in these directions. Training for war is not his responsibility. The more training is carried out, the less important becomes his position in peace, and in war the more fighting there is, the less part he plays, for his war employment in charge of the S.A.A. supply is utterly out of keeping with his status as a first-class warrant officer. Therefore, the more drill and routine loom large, the more authority he wields; being human he is unlikely to advocate any proposal for changes which will reduce his authority and, being also human, the junior N.C.Os. who are striving to emulate him successfully, and so in time succeed to his place, will give him their full approval and moral support if he takes up such a position. He is, in fact, a chartered reactionary and, from the point of view of this argument, a devil's advocate wherever he goes.

Now if his duties could be so rearranged as to give him more scope on the battlefield, the result ought to be a change of interests in peacetime. What can be done? He must in any case be rescued from the doldrums of ammunition supply, and given a war appointment appropriate to his experience. If used on intelligence duties at battalion headquarters the intelligence officer could be freed for reconnaissance or liaison; the defence of headquarters demands more attention in these days of armoured vehicles and aircraft than was ever needed in more old-fashioned days when the thin red line held firm; command of the anti-tank platoon is not an impossibility, while in peace he could certainly be used on the tactical side of section leaders' courses. His actual duty is a matter of detail, but the essence of the argument is clear: make tactical training a business proposition for the Regimental Sergeant-Major, and a change of heart will follow as a natural consequence.

Mention of the sergeant-major leads us on from close-order drill to the closely allied question of routine duties, which nearly always start from a parade on the square. Go round any infantry barracks on any afternoon, and likely as not you will see one or two men carrying out some perfectly straightforward task such as ridding some part of the barracks of a few weeds, watched by a non-commissioned officer faultlessly dressed but himself doing nothing at all. The men have been given a task which must be perfectly clear. If they want to do it, they can do it, whether or not they are being "supervised." If they were doing piecework in civil life there would be no question about their

being set on to the work by the foreman, i.e. the N.C.O., and left alone to do it. It would be uneconomic to adopt any other method. But in the infantry the foreman is found not working himself but watching the men to make sure that they do it. Leaving out the economic aspect with the passing comment that such a method is directly opposed to the principle of economy of force, let us see what is the effect of such methods on discipline: an unsatisfactory one to say the least.

It is on record that in a lecture at the Staff College shortly after the War a prominent railway official said that there was no real discipline in the Army. Elaborating his thesis to his astonished hearers, he explained that in the railway world a ganger or signalman went on and off his duty at the appointed times and did his work in between because it was his business to do it, and that as he was proud of his calling as a railwayman he required no supervision in his work, whereas the soldier had apparently so little self-respect or pride in his calling that he could not be trusted to do what his social equal the railwayman did unflinchingly as part of his daily life.

Now let us look at a coal delivery in the married quarters; here there may be an army vehicle and a civilian coal merchant's vehicle delivering coal side by side. The former has the driver and the traditional "one N.C.O. and four men," the latter the driver and at most one other man. What a comment on our present system! What incentive is there for a man to cultivate self-respect under such conditions, and what wonder that the lines of the troops' song run:—

"The more we do, the more we may,
It makes no difference to our pay."

One has only to employ the average soldier away from supervision to find that he will avoid doing anything which he thinks can be left undone without getting found out, so much so that this attitude of mind is known to civilians as "old soldiering." And here we come to another very serious result of a wrongly conceived discipline. The commandant of one of the Army Vocational Training Centres who devotes much time to interesting the army at large in the resettlement of the soldier in civil life is often heard to explain how it is necessary when men arrive at the Centre to train them to be civilians, or in other words to set to their work at the proper time without the uneconomic parades, roll calls and supervision, and to do their job for the job's sake.¹ All to the good, but can we do otherwise than regard this state of affairs as a condemnation of a system which takes a man from civil life and in six years and a half has so unfitted him for it that a special course of

¹ This clearly is the corollary to "playing the game for the game's sake," but for some reason we do not hear so much about it in the infantry.

disciplinary training is required to enable them to derive full benefit from his vocational training proper.

No doubt if a change of system was made even in the best of units the first fruits would be unfinished work, absence and the minor delinquencies which go in the army by the name of "crime." But could not at the outset both units and higher formations face a certain amount of these shortcomings, if the result is to be a discipline more akin to modern discipline in civil life and a saving in duties which will make more N.C.Os. available for training?

The effect of the present system on the N.C.Os. is that the N.C.O. who is not a tradesman or an athlete not only does no manual work, but spends much time doing nothing but look on, at work and at play. Now as nine N.C.Os. out of ten return like the private soldier to manual work in civil life, this is the worst possible form of training for them. One last word. It will often be noticed that when a N.C.O. is told to make his men do some task he appears incapable of doing it unless he is allowed to begin by forming up his men two deep, and then marching them off to the right. There appears to be some "loss of face" in giving the men an order in plain language and telling them to go off in their own time and do it; yet if the object be to do a job, surely the only thing which really matters is that the job should be done in the best way and the shortest time. Doing the thing wrong in the right way cuts no ice in civil life.

Lastly there is the bearing which dress has on discipline.¹ A sloven in any walk of life is likely to be a bad man at his trade, but there are many trades at which a man cannot be expected to work properly in clean clothing. Mechanization is bringing this home to the Army, but there is still, or was until very recently, a prejudice against any body of infantry coming home dirty from training. Just as the modern mechanic works amid oil and grease and the farm hand in the byre and the midden, so the modern infantryman works in the mud and dust of the battlefield and goes like the serpent on his belly. Yet again the change in infantry tactics has to be emphasized, for in the days when our present drill was evolved the infantryman did his fighting standing up. The questions of personal cleanliness and of clean clothes at work are entirely separate, as the Royal Tank Corps has long since realized; the former is the

¹ In 1799 General John Money perceived that good dressing and good discipline did not go together, when he noted that in the American War of Independence the French "perceived the undisciplined peasantry holding in check the best-dressed regiments in the British service."—Open letter to the Hon. William Windham, quoted by General Fuller, "British Light Infantry in the XVIIIth century," p. 204.

indispensable adjunct of the disciplined soldier ; insistence on the latter not necessarily so ; more often it represents a departure from the principle of maintaining the objective, in that it diverts attention from the essential use of ground to the non-essential freedom from mud and dust.

So far every argument which has been put forward has been directed against some existing practice. It remains to mention one branch of Army training the results of which are wholly good, and in which the system is well adapted as the basis of any experiment in a new discipline : physical training, designed according to Infantry Training, Vol. I, to develop strength, mental and physical agility and *capacity for work*. What more is required ? Which is the better basis of discipline : the rigid formations of close-order drill, with its suppression of independent thought, and the resulting habit of " waiting for the word of command," or the man who is trained to be mentally agile and " get on with it." It is no accident that the present leaders of Germany and Italy, engaged in reforming the discipline of a nation, have made such a feature of physical training for youth as the basis of a conscious and intelligent discipline.

In the foregoing lines, then, it has been argued that while the training and organization of the infantry have undergone fundamental alterations in the last two hundred years, and the educational qualities of the infantry recruit have changed out of all recognition, no adequate changes have taken place in the character of our discipline which, as a result, is no longer as it stands entirely suitable as a basis for training modern infantry for modern war. Yet this is not surprising, as all changes in tactics and organization begin as experiments, and it is not reasonable or wise to meddle with a discipline of proved soundness merely because an experiment in another direction is in progress. So the years have gone on, and the old discipline, based on close-order drill, stretched and strained to meet the new conditions ; attractive arguments have been put forward in its favour, and the Army has been invited to believe that the system, and especially the practice of close-order drill with its sentimental connexion with past victories, confers a moral advantage on the modern soldier, although the evolutions themselves no longer have any connexion with modern battle. The excellent practices of the XVIIIth century have, in fact, become our principles of to-day.

Let us put sentiment aside and realize the danger, in the Army as in every other walk of life, when we mistake old-established practices for eternal principles and find ourselves in situations never contemplated by the originators of those practices. Let those who are prepared to argue in favour of close-order drill and clean clothes look over their

arguments again and see whether they are arguments based on the requirements of modern battle and the advantages of modern education and developed forward from these, or whether they are developed backward from the supposed need to maintain our present institutions intact. The argument that things are very well as they are is bound to be raised in the face of every reform, and is never one which can be accepted by itself as being valid against a change. The whole series of reforms, from Cardwell to Haldane, which now have their place among the household gods of the Army were made in the teeth of such arguments; the histories of such organizations as the Machine Gun Corps are instances of their power indeed, but not of their soundness.

Army discipline may in fact be likened to a piece of excellent old-fashioned machinery in some factory, admirably designed in accordance with the ideas of the times, which has given splendid service and is in working order despite its age, but which, sentiment notwithstanding, must be replaced by something more up to date if the factory is to keep its place in an industry catering for conditions not as they were but as they are. What is to be done? There can be no question of any sudden and violent change in our methods, even if it were necessary: it would be as rash as for a man climbing a ladder to let go with both hands at once. But surely we can experiment as we have done with our organization and equipment when it has been necessary to put opinion to the proof. Is it too much to ask that trials should be made with a view to maintaining discipline on some other basis than squad drill, to the abandonment of needless supervision and to giving the warrant officer a more direct business interest in training for war than he has at present.

This is not the place to put forward elaborate schemes, for what is required before any change of regulations is a change of heart, which cannot like changes in war material be promulgated in Army Orders; if public opinion changes in the Army, the framing of new regulations and their application becomes an easy matter. It may be that the case for a change has been based on faulty arguments: if so, the champions of the existing order will not be slow to expose the fault. No harm will be done: the sergeant-majors can carry on, and the troops go on "waiting for it." But if, as the writer believes, a case has been made out for a more modern infantry discipline, then our minds should be directed to a search for methods better attuned to the spirit of the age and more closely related to the demands of modern battle. And it is high time that the search began in earnest.

RAISING THE GERMAN FLEET AT SCAPA FLOW

By E. F. Cox.

On Wednesday, 14th February, 1934.

VICE-ADMIRAL C. M. FORBES, C.B., D.S.O., in the Chair.

The Chairman introduced the Lecturer.

LECTURE

AFTER the Germans sank their fleet at Scapa Flow in 1919, the vessels lay there undisturbed until 1923. Many people went and had a look at them, but decided that any attempt at salvage would be too much of a gamble. I had been busy breaking up two British battleships, when a Danish friend of mine suggested that I should have a shot at raising some of the German fleet. Breaking up a battleship on the surface is a vastly different matter from attempting to lift it when it is below the water; nevertheless, all my life I have loved a gamble, so I went and had a look at the job.

To anybody with ambition and enterprise it was a most inspiring sight; some of the ships were upright, some of them were on their sides, and some of them were upside down; some of the destroyers just had their masts showing. Considering that I had never lifted a battleship, a cruiser or even a boat in my life, it was a pretty formidable problem to tackle, but "nothing venture, nothing gain." I went back to London and discussed the question of buying the ships with the Admiralty. Eventually I made a contract, whereby I had to pay a certain sum for the ships; the cost of raising them was then my affair.

Two things are essential for salvage: the first is a lot of money and the second is unlimited confidence in yourself. Without those you fail, for heavy salvage work is the most heart-breaking job that anybody can tackle.

LIFTING THE DESTROYERS.

I will begin by describing how I lifted the first of the twenty-five destroyers; afterwards I will tell you how I raised some of the six battleships which were saved.

The first thing was to organize suitable lifting gear. It so happened that, at this time, I had an ex-German submarine dock for breaking up,

and fortunately it was only about half demolished, so I proceeded to adapt it to provide my lifting gear.

The first destroyer to be tackled weighed 750 tons—the largest destroyers weighed 1,500 tons. Vessels of that weight cannot be handled with light gear, so I made up my mind to use gear which would be heavy enough to be perfectly safe. We towed the floating dock from our place at Queenborough to Scapa Flow, and there it was cut in two. On these two halves were mounted winches and cranes for handling the wires, chains and various salvage gear.

We placed the two lifting docks over the first destroyer, and proceeded to reeve wires underneath her and up the other side to the dock. In this we were helped a lot by the fact that these craft were cut away under the stern. Although she was in 70 feet of water, it was quite an easy matter for our divers to go down and pass the first wires through the gap between the stern and the sand or shingle on which the vessel was resting. Four wires were passed under the stern, so that that end could be raised and the other wires rove underneath the rest of the ship. We had previously tried hooks in portholes and slings round guns and torpedo tubes, but after tearing away the first and wrenching out the two latter, we realized this was useless.

At the edge of each dock we mounted a six-inch steel shaft with 4-foot 6-inch cast-steel wheels constructed so as to take either chains or wires. These enabled the wires or cables to ride easily over the edge of the dock. At first I tried chain cables which came from the two British battleships which I was breaking up: as I already had these chains, I thought there would be no need to buy wire ropes; but we soon proved the truth of the old proverb that, "there is always one weak link." First number 1, then number 2, and then 3, 4, 5, 6, and all the rest up to 10 gave way in quick succession. We had over a hundred men on the dock, but in spite of the fact that links were flying all over the place, not a single man was hurt.

Up to this point I had spent £40,000 on my venture and I had not yet lifted my first destroyer. However, I was well committed to it and had to go on. I had twenty-four 100 ton pulley blocks specially made; with these I could lift, if necessary, 2,400 tons. As the heaviest destroyer was 1,500 tons, I had a good enough margin. The pulley blocks were controlled by twenty-four 10-ton hand winches. People have often asked me, "why did you have hand winches?" The answer is that these winches cost me only a hundred pounds each. If I had been doing the job for the Government I should naturally have gone in for steam winches, but they would have cost four or five hundred pounds each.

With these hand winches and pulley blocks we could wind up the wires under the destroyer, and a man could go along and tap the wires with a hand hammer to see if there was too much weight on any of them. The winches were manned by four men to each of them. When we found one over-loaded we used to put more strain on the adjoining winches to relieve it. This gear proved entirely satisfactory. With it we lifted the whole of the destroyers and never broke a single wire; we cut any number of wires on the sharp edges of the destroyers, but that is a different matter.

Our first destroyer naturally caused us a good deal of anxiety. We found the docks going down and down, and did not know how far they would sink before we got the weight of the ship. By the time we had lifted several destroyers, however, we were quite used to this. We had a lot of trouble at first with the wires but, eventually, we got so proficient that we could pass a wire under a destroyer in about twenty minutes. This sort of work could not, of course, have been done in the open sea. If a gale had come on when we had all our gear out it would have been wrecked in no time.

We were able to sell about half the destroyers, but the others we had to break up ourselves. We much preferred to sell the ships because then we got our money straightaway; if we had to break them up it took a long time and we had to wait for our money; but sometimes there was nothing else to be done. Our depot was on the Naval Pier, which I leased from the Admiralty. I spent £70,000 on the plant alone.

Every ship presented a different problem; and one of the worst was a 4,000 ton light cruiser. She was even worse than the "Hindenburg," and one of the filthiest ships I have ever worked on, being full of oil fuel. I lost £20,000 in lifting her, but I am happy to think that not a single ship which I have had under my direct control has ever beaten me. There was no great difficulty when we found a ship upright but, after lifting five or six destroyers in the way I have described, the diver reported that the next was lying more or less completely on its side. (I must explain that we did not go round looking at these ships and picking the easy ones; we started at number 1, and took them in turn until we had lifted them all).

This new problem was solved by lifting the ship as she lay and taking her out into deeper water where, by easing down the wires on one side and winding them up on the other, she was turned over. We had her upright before lunch on the first day. We lifted several destroyers like that; sometimes we found them completely upside down and had to turn them right over. In one case we found three destroyers piled up together.

They had all been moored to one buoy and had sunk in 110 feet of water. One destroyer was upright and the other two lay on top of her in the form of an arch. However, we passed our wires underneath one of the uppermost destroyers, lifted her bodily off, took her away, lowered her on to the bottom, turned her over, and then dealt with her in the ordinary manner. Then we did the same with the other overlying destroyer, and finally lifted the third.

THE "HINDENBURG."

I am now going to pass straight from the twenty-five destroyers I raised to the "Hindenburg." Until I tackled this 28,000 ton battleship, the largest ship I had lifted was only 1,500 tons. I have explained that raising the destroyers was solely a mechanical matter. The "Hindenburg" was a different problem altogether, because there is no dock in the world that can lift a ship of 28,000 tons unless she is floated into it. There are numerous floating docks in which a 40,000-ton ship can be lifted, but the "Hindenburg" was lying on the bottom. Her mast and two funnels were showing above water. From midway between the funnels to the stern the ship was submerged, and there was 28 feet of water over the upper deck. From the nose of the ship to the bottom was 65 feet. The after-funnel had a hole in it through which you could have driven a motor-car, so we had to cut it off and patch it; that alone cost £800.

We started to use our 12 inch and 6 inch pumps and were very elated when the "Hindenburg" began to rise. But when her stern was up about seven or eight feet, the real trouble began, for she at once heeled over most alarmingly. We could control the forward end but we could not control the stern; in other words we could only control the stability of the ship when we raised the forward end. The cause of all our difficulties was that for roughly 300 feet of her 750 foot length, the keel of the ship was only about 3 feet wide, with the result that, the moment she was raised so that her weight was no longer resting on the broad flat midship section, the end which was still on the bottom was only supported on a knife-edge, so to speak, and she became unstable.

By the time we had arrived at this stage I had been working on the "Hindenburg" for about five months. I had spent nearly £40,000, and had only £10,000 or £12,000 left. There was nothing for it, but to leave her for the time being and go for another ship. Actually it was three years before I returned to the "Hindenburg" and in the interval I lifted three other battleships. These three ships gave me additional experience, and to-day I could go for a "Hindenburg" without hesitation.

The bottom at Scapa Flow is largely sand and shingle, and I had banked on the "Hindenburg" being in the same kind of bed as the

destroyers. If it had been, the whole job would have been very simple, because as the nose of the ship came up the stern would have automatically cut down into the soft bottom, bedding itself steadily. Unluckily, she was resting on solid rock ; therefore the stern could not bed down, and as the nose of the ship came up we were really trying to balance her on this narrow keel.

We tried all sorts of things, amongst them sinking a destroyer near by and using a huge tackle from the mast to try to keep the battleship upright ; but it was hopeless. There was only one thing to be done, and that was to shore up the stern somehow ; so I built a large block of concrete under one quarter. I knew that I ought to put a block on each side, but it would have cost £2,000, so I decided to try with one block. The "Hindenburg" came up and behaved very nicely, but as soon as she got to the ordinary height she heeled over on the opposite side. So she had to be lowered down again, and a second large block of concrete built under the other quarter. Then, at last, we were successful.

I have often been asked "why did you not try pumping out one compartment after another ?" The reason was that the "Hindenburg" had a unique system consisting of a ring main connecting every compartment in the ship. Every compartment had a valve and an inlet, and every one of those valves was open—not outward to the sea, but between the double bottom and the main. Eventually, the divers found the two forward control valves, which meant that we could always control the forward end ; but the Germans had disconnected the spindles of the valves which worked from the armoured deck, and the wheels would not work them. The result was that there were always thirty or forty thousand tons of loose water in the ship which moved when she started to move, and we could never get control of her by pumping out each compartment in succession until she was empty.

What we had to do was to get the ship in such a position that she would eventually come up on an even keel. Once the stern was steadied by the concrete blocks we could work day after day with the nose well up—we worked for weeks with the nose forty feet in the air—then we could go down and place our pumps just where we wanted them. I had forty pumps placed on the armoured deck with suction pipes down every escape hatch to the bottom of the ship in every boiler room, engine room, and magazine.

The ship was now perfectly easy to lift ; her nose was up and she was keeping herself level. The submersible pumps were in place : they could be covered with water but it made no difference ; the electric power could be switched on, and we could see that they were working by watching the discharge pipes.

Having got the bow well up, the next question was what would happen when the stern left the bottom ; but that was a risk we had to take. I felt confident that when more than half the ship was out of water the stability of the middle portion would keep her upright, and this theory proved correct. We went on pumping ; the ship, which had a list of about 2° , began to get lively ; there was only one man left on board, and he stood on the bridge, and observed the list. The ship jumped, and began to heel over—3, 4, 5, 6, 7 degrees in less than as many seconds. You can imagine our emotions at that time. I had spent £70,000 on the ship and still did not know whether she would go right over or not. It was a great relief when the observer on the bridge, after calling " 5, 6, 7, $7\frac{1}{2}$," began to report " $6\frac{1}{2}$," and then " 6 " : at last I knew that I had won.

THE "MOLTKE."

The next ship which I want to talk about involved a different kind of salvage work. While I was worrying about the "Hindenburg," I had a visit from an Italian who had raised a battleship that was lying upside down. I do not claim, therefore, to be the originator of lifting ships upside down ; nevertheless, before I left Scapa Flow, I had raised six in this fashion to his one ; moreover, he lifted his battleship for the Italian government—a vastly different matter from spending my own money on that sort of job.

The Italian ship had been about the same size as the "Moltke"—23,000 tons ; and my informant said that all I had to do was to seal up all the openings, pump in compressed air, and she would come up to the surface. It sounded simple, but the trouble was that this ship had a list of 18 degrees, and when compressed air was pumped into her it automatically went to the highest point, and instead of levelling herself, as the Italian ship did, when her nose came up she went over to 25° . Another difference was that whereas the Italian ship had been conveniently divided up into compartments, "Moltke" had no fore-and-aft bulkheads in her boiler rooms, so I could not level her by pumping compressed air into one side and not into the other.

One of the first problems was how to get in and out of the ship without losing air pressure. This was solved by extemporising an air-lock. Eventually we fitted two air-locks, one forward and one aft, and after five months' work we got the ship up. If I had had the experience I have to-day I should have put about six air-locks on her and raised her for about a quarter of the cost. In the case of the last ship I lifted, the air-locks were 75 feet long, the vessel was 40 feet below the water and had a list of 23° . When the "Moltke" came up, she came up slowly ; my last ship jumped bodily in one minute from 40 feet to the surface ; you can realise some of the sensations you get in salvage work !

The main difficulty in each case was to get the ship level before raising her. In our efforts to do this we made any amount of mistakes through lack of experience. For one of my experiments I used the hull of a destroyer, sealed and filled with water so that it weighed 1,300 or 1,400 tons. This I secured to the bottom of the "Moltke" on the side which we wanted held down. But it only reduced the list from 25° to 24°. Eventually, I put another air-lock further down to the engine room, and secured the necessary buoyancy for only a quarter of the money.

Another trouble we had was valves. We found about a dozen of these open and had to seal them with special underwater cement. We kept pouring cement down until they were stopped; it hardened in 24 hours, and we found that we could close any holes there were and start charging the ship with air again the next day.

Once she was afloat, we had to get the "Moltke" ready for her 190 miles voyage to Rosyth. A power house and living quarters on stilts were built on the bottom, the object being that in the event of bad weather the waves would wash over the bottom of the ship and underneath the house. That worked very well. Then arrangements had to be made for docking her upside down. This necessitated costly preparations. The turrets could be left and the vessel landed on the highest of them; but the funnels had to be blasted off. A much more formidable obstruction was the conning tower which projected four feet below "B" turret and could not be left as it was. In the case of the "Moltke" we rested the ship on a rock before leaving Scapa Flow and pushed the conning tower up into her. On that occasion all went well because it stayed up, but in succeeding ships the conning towers dropped down again and cost a lot before we had dealt with them.

Then there was the question of insurance. When I went to see the underwriters in London, they said, "You don't really expect us to insure a battleship which is to be towed upside down from Scapa to Rosyth?" I reminded them that the Italians had done it, but they said that taking a ship into Taranto harbour was a very different matter from taking one down the North Sea. Nevertheless, I got the ship insured for a premium of £8,000 for a three days' voyage. So the insurance people did pretty well out of the deal.

Lastly came the question of tugs. The insurance company would not allow us to use British tugs, because they were not powerful enough; so I got into touch with the Germans and did a deal on the basis of "no cure, no pay." On the day we left Scapa there was a slight difference of opinion between two of the tug captains with the result that a towing wire got foul at the entrance to the Pentland Firth, and we had to drop anchor and make the ship fast. The next day we got under way again

and found half a gale blowing, but we had to risk the consequences and go on or we should have missed the spring tide and the ship could not have got into Rosyth dockyard for a month. When we reached the Pentland Firth the ship rolled, pitched and tossed, and several of our fourteen men on the platform were very sea-sick. We made signals to the tugs, but they were half a mile away and everyone on board them was sick too.

Eventually we got clear of the Firth and I landed at Wick. On arrival at Rosyth, I was told that the ship could not go to that Dockyard after all. This meant a visit to the Admiralty, and the order was eventually rescinded, and I was given permission to go ahead. On returning to Rosyth I went out to meet the ship with an Admiralty pilot, only to find another pilot was already on board. A quarrel arose as to who was to take charge. Meanwhile the tide had caught the ship and the whole tow was in danger of fouling the Forth bridge and the tugs had to cast off. Every penny I possessed was in the "Moltke" and it looked as if she was going to increase my liabilities very considerably. Fortunately the turrets hit the rocks, pushed her off and she drifted clear under the northern arm of the bridge while the tugs passed under the southern one. We recaptured her on the far side and so brought her safely to the dockyard.

DISCUSSION.

REAR-ADMIRAL C. J. C. LITTLE: I am one of the few naval officers who have been fortunate enough to have been ordered by the Admiralty to take charge of salvage operations with Mr. Cox as my adviser, and my reason for rising is to pay a tribute to him. It is apparent to all of you, after his lucid description of this salvage work, exactly what he did. It occurred to me that he might not dwell so much on the financial side, but he has pointed that out to you. The financial side does not always appeal so much to naval officers and government officials. It is true that if we undertake an operation of this kind, or any operation, we risk our reputation and the lives of the men who work under us; but we are in a "sheltered trade," and we do not risk being put into the workhouse, as Mr. Cox did. That is a side of his story which appeals to me greatly. So much of his work was done by trial and error, and he has shown us, and I can confirm from personal experience, what remarkable tenacity and driving power he possesses.

THE CHAIRMAN:

The Lecturer referred to the "spirit of sport" in connection with his salvage work. Personally I should call it the "spirit of adventure." I think there is no doubt about it that, except in special cases, such as we have heard to-day, the country has been losing a little of that spirit since the War. I think when we have fully recovered it we shall really start once more to go ahead.

It is quite apparent that the last speaker is on the Staff side of the Admiralty and not on the Controller's side! He said a word or two about money not mattering, but, even in the salvage operation he was referring to, I think if I were to ask Mr. Cox he would say that we kept him a little bit short at times.

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

INDUSTRIAL MOBILISATION IN FOREIGN COUNTRIES

Being a summarized translation from the "Revue Militaire Francaise," No. 151 for January, 1934, of an article by Lieut.-Colonel de Gaulle, of the Secrétariat Général de la Défense Nationale.

POLITICIANS, soldiers, business men and economists nowadays proclaim the comprehensive nature of National Defence and the consequent necessity for preparations to utilize all the resources of the country. But, although universally admitted in principle, such a preparation presents many difficulties in practice. The magnitude of the problem to be solved, its complexity, the fact that it largely implies the co-operation of a diversity of activities, and lastly the fact that in the nature of things these preparations are for the future, whereas plant and machinery are invariably found adapted for apparently more urgent work, militate greatly against planning for national mobilization. Such a state of things exists in every country, so that the object in view and the obstacles encountered are more or less everywhere the same. It would, therefore, seem useful from the practical as well as from the speculative point of view to consider what is being done by others.

Three countries, the U.S.A., Italy and Belgium, have publicly described the plans they have made for the organization of the nation in case of war. We can, therefore, study them to our own advantage.

THE UNITED STATES.

The U.S.A., with their immense resources, endowed with an industrial plant capable of an immense output, with all classes of the population displaying a limitless zeal for gain and consequently for work, possess in their capacity for manufacture a powerful potential for making war. Invasion cannot paralyse their factories or mines; blockade cannot cut them off from the rest of the world. In the matter of manufacture they have the time, the space and the means.

It is not sufficient, however, that the necessary stores can be manufactured when they are wanted. If the complexity of the problem of mass production, the variety of machine tools required, the selection and training of personnel, the adjustment of machines, the distribution of power be taken into account, it will be realised that the most

flourishing factory cannot change over from its normal activity to another in a moment. That is all the truer in the case of war stores which require great precision of manufacture. This demands a whole process of adaptation which cannot be improvised, a process, indeed, that the U.S.A. learnt by experience during the Great War. The failures which they had to remedy are known; the Armistice arrived before they were able to use one single gun, one single aeroplane, one single tank which had been wholly manufactured in America. On the other hand, uncontrolled production had caused enormous stocks of anomalous articles to accumulate; these, produced at the highest cost, were eventually liquidated at disastrous loss. In short, having failed to organize the change-over of the output of industry, the results obtained were out of all proportion to the effort and funds expended.

The organization created in the U.S.A., in so far as the utilization of the resources of the nation is concerned, complies with these conditions and experiences. To foresee the requirements as nearly as possible, to determine which factories are in a position to supply them under the best conditions, to profit by the fact that certain enterprises are redundant, and to use, from the outset, only those best adapted thereto; and in turn to induce the latter to prepare themselves in peace for the part they may play in war; to establish a close contact between industrialists and the technical military services, and above all, to accept the fact that business men must be allowed to make profits, in order to exploit the desire for such profits, but to limit these in order to avoid the scandals of the last War; such are the conditions that must be fulfilled in order to obtain the necessary immense quantities of stores from industry.

The National Defence Act, of 4th June, 1920, assigns to the Assistant Secretary of War the task of estimating, in war as in peace, the requirements of the army in material. While the General Staff is concerned with the mobilization of the Forces, their training and military operations, the Under Secretary is in charge of the co-ordination of the activities of the Supply Services. There are seven of these Supply Services, namely:—Quartermaster Corps; Ordnance; Air Corps; Medical Corps; Signal Corps; Chemical Warfare Service; Corps of Engineers.

These Supply Services are composed, naturally, of technical officers; but in the American organization each of them is permanently assisted by a "Study Committee" formed of individuals in the business world. In addition, two committees, one of which deals with power and motive force, the other with shipbuilding—in so far as these subjects interest the War Ministry—assists the Under Secretary for War. One committee, entitled "Munitions," works on behalf of both the Army and the Navy

when their requirements are for similar stores. Lastly, all these committees are headed, as it were, by another which is called the "War Department Business Council" and is the permanent council of the Central Administration in connection with industry, commerce and transport. Important men in the economic life of America take an active part on this council.

Thanks to this collaboration between business men and the Administration, the latter has full knowledge of what to order and can take the necessary measures to ensure their execution. In each Supply Service, the planning of manufacture, based on the demands of the General Staff, is worked out by three sections :—

- (a) The Study Section, which studies the industrial concerns from all angles ;
- (b) The Supply Section, which works out the means of supplying the selected factories with all that is necessary to carry out the orders—particularly with regard to raw materials ;
- (c) The Section for the Means of Production, which studies economic development, in particular from the point of view of manufacturing processes of scientific appliances ; and as a result, directs industry itself or the technical military services accordingly.

Up to this point the work, however urgent and important, is merely theoretical. It remains to put the approved factories in a position to proceed, with the least possible delay, with the manufacture of specific war stores.

First of all, each principal Supply Service divides the country into a certain number of districts, according to local economic conditions. Thus, "Ordnance" (i.e., Armaments) consists of fourteen areas, the "Air Corps" consists of six, etc. At the head of each District is an office, which is constituted essentially of important representatives of local industry, and of an adjutant. A kind of staff of industrial specialists assists the office. All the civilians give their services free (they are actually paid one dollar a year), and will keep their posts in war time, even if on the Army Reserve.

The District Office divides up the orders between the selected factories in such a way as best to carry out that part of the plan of manufacture assigned by the Central Administration. Officers re-attached to the district, make personal contact with industrialists, inspect the factories, estimate actual production, and offer, if necessary, technical suggestions as to the lay-out, the eventual position of special plant, the receipt of manufactured goods, &c. . . .

Such a system, which depends entirely on collaboration between the Army Supply Services and manufacturers, implies mutual understanding. The soldiers must acquire a profound knowledge of the way in which industry works. In the same way, industrialists must know the nature of the requirements they will have to satisfy. The Americans have therefore adopted means to assure that both sides shall consist of suitable personnel. An "Army Industrial College" has been set up to give officers of the Technical Services the necessary instruction. Some of them even follow courses at the "Harvard School of Business Administration," of which the "Centre de préparation aux Affaires," recently founded in France is a kind of replica. Moreover, with a view to educating future district chiefs, members of committees attached to the military Supply Services, or simply managers of factories which will have to work for National Defence, several hundred young men are chosen annually at the Universities—consideration naturally being taken of their intended future profession—to receive instruction at that school.

In order to ensure that industrialists shall display the same practical enthusiasm that they bring to bear upon their own business in normal times, the State holds out the bait of profits. No one in America supposes that this incentive to activity will disappear, even in time of war. However, after the scandalous experiences of 1917-1918, it is essential to keep profits within reasonable proportions. Certain types of contracts between the Ministry and industrial concerns have been formulated, ensuring substantial but limited profits to industrialists: in principle, 5 per cent. of the total value of the orders; more, and up to 12½ per cent., if by lowering of cost price, the manufacturer can carry out the order for less than the estimated cost, and so effect economies to the State. In every case, so as to cover the industrial concern from loss by mistakes in new manufacturing processes, a general guarantee of 1 per cent. profit is conceded. Lastly, Governmental financial assistance in setting up or changing over certain plant is also assured.

Nevertheless, these bases for future markets in time of war appear to leave points undecided which must be settled on mobilization in each separate case. There is certain to be a diversity of interpretation in application. However, one must admit that this lack of precision does not worry the Americans, who are busy trying to achieve results rather than to multiply safeguards. In any case, the system seems to have given satisfaction. Since 1930 more than 20,000 industrial concerns appear to have received instructions regarding their duties in war. The attitude of industrialists has been, practically everywhere, one of full co-operation. Many have prepared exhaustive plans, giving the probable rate of production of their factories. Many also have drawn up plans, at their own expense, for the modification of their factories on

mobilization. In short, it appears that America is in a position, should need arise, to manufacture war stores in enormous quantities—this time with a controlled output.

But it is not enough to have drawn up plans for factory work. It remains to distribute these, a matter in which the State must participate lest speculation and trade rivalry should upset all calculations.

In each Supply Service of the Central Administration, the Section of Supplies, assisted by the committee of raw materials (a committee for each item) maintains a list of raw materials called "strategic," the stocks thereof and the source of production. An "Office of Priority" arranges for their distribution. Twenty-six "strategic" materials have to come by sea, in particular antimony, chrome, manganese, mica, nickel, mercury, tin, tungsten, iodine, nitrates, rubber, coffee, silk, etc. By arrangement with the Department of Commerce, the War Ministry is trying to encourage internal production or to discover substitutes.

The U.S.A., certain as they are of not being directly menaced by any particular single Power, nor invaded, are not concerned with organizing a national maximum effort, but have limited their measures for National Mobilization to planning the co-operation of Industry in the manufacture of war stores. From this point of view, the organization achieved corresponds exactly to the temperament of a people which sees everything on a large scale because their means are on a large scale, and to whom expense is a secondary matter. Lastly, their social system, in which material gain is the driving force of all activity and the foundation of the whole social system, allows the powerful incentive of private gain.

It is true that fresh economic, political and military conditions will undoubtedly make for radical changes in the realm of National Defence as well as in other matters. Who knows what in a few years will be—not, of course, the natural riches of America which will remain immense—but the output, the industrial equipment, the financial capacity of the States? It is of little value to say that the U.S.A. must, some time or other, extend their war preparations—at present limited to industry—to every department of national life. One may suppose that private initiative, huge expenditure, large dividends, all of which form the basis of the American system, may be replaced, sooner or later, by more rigorous conceptions of economy, obligation and equality.

ITALY.

Similar conceptions are found and already practised in Italy with all the severity allowed by a regime of absolute authority. It is true that the organization of ultimate national effort is a particularly difficult

and complex task for the Peninsula. Actually the industrial capacity and national resources of Italy are far from being equal to those of other first class Powers. In addition to this, the country lacks essential raw materials. But on the other hand, in compensation for this, the Facist regime allows public authorities to exploit existing resources to the utmost without reserve or restriction. The subordination of individual interests to those of the State, the discipline, and the co-ordination imposed on the various departments, lastly the sort of latent exaltation inculcated in a people under Fascism at present all conspire to assist measures of National Defence.

On 7th January, 1925, there was instituted a "Supreme Commission of Defence," analogous to the French "Conseil Supérieur de la Défense Nationale," comprising, under the presidency of the Duce, the principal Ministers, the Army, Navy and Air Force chiefs, the Chiefs of Staff and the General President of the Committee of National Mobilization. In order to co-ordinate its rulings, the Commission has under it a "Committee for National Mobilization," which consists not only of official representatives of the interested Departments, but also of individuals belonging to certain industrial associations.

This co-ordinating centre was next endowed with legal powers for taking appropriate action in peace and war. The Law of 8th July, 1925, for the organization of the Nation for war, appointed the authorities charged with this duty, and gave them most wide powers.

This Law naturally applies to "civil mobilization." Military mobilization, in Italy as elsewhere, has long been provided for and directed by the Ministries for War, the Navy and Air. But the "civil" departments are, in general, more or less inexperienced in war preparations. This difficulty in adapting themselves to war conditions is of course almost inevitable in departments envisaging the abnormal circumstances of war. Besides, in a nation used to conscription, the idea of the duty of National Defence outside the army, i.e., in the factory, the office, etc., only spreads gradually. For this reason the Italian Law of 1925 defined the nature and obligations connected with "civil" mobilization, and its planning as well as its execution.

All citizens of both sexes above the age of fourteen are obliged to co-operate in National Defence, according to regulations fixed by the proper authority. If they find themselves called up for military duties, their case is naturally governed by the special laws concerned. If not, they nevertheless have to undergo a "war training," for which a complementary law fixes the nature and circumstances.

Each department of the State is obliged to prepare for its own mobilization, as well as for that of such of its subordinate services as

are required by the nation in war. The same applies to selected syndicates, societies, and industrial organizations. Their plans must be drawn up in agreement with the proper organization, viz., the Committee for National Mobilization; the Supreme Council of Defence having the right of veto. In practice, this arrangement has the effect of giving to the specialists of National Defence a right of inspection and a kind of control over the work of all departments in war planning.

The Government has the permanent right to requisition, at any moment, all citizens, all property and all activities which are deemed necessary to National Defence, even privately owned patents and inventions. Within the strict limits of these principles, the law defines the scope of organization:—armament production (in so far as this is not an affair of Government arsenals working for the Army, Navy and Air), imports, food, propaganda, the duties of the local administration, and labour. The work of co-ordinating these various activities is handed over to the "Office of Civil Mobilization," an offshoot of the Committee for National Mobilization, working under the Ministry of Corporations (the latest form of a Ministry of National Economy). This attachment to a department of State secures for the "Office of Civil Mobilization" a peculiarly powerful patronage. Lastly, the law lays down that methods of finance and the administration of State revenue in case of war must be settled in advance. Thus planned and directed, the organization of Italy in case of war has made rapid progress, notably in the field of economic mobilization.

With regard to armament production, there has actually been, since 1920, a "Service of Industrial Observers," composed of officers (about 50) attached to the staff of the Regiment of Artillery, whose duty it is to keep in personal touch with industrialists in their district and, if possible, to guide them in their preparations for war. A few officers, nominated by the Navy and Air Force, completed this service. But these observers, lacking clearly defined rights *vis-à-vis* industrialists, who in their turn had equally vaguely defined duties, could not in practice obtain much result.

A legal basis was given to this institution of "Observers" in 1923. Thenceforward the observers had an absolute right to inspect factories under their jurisdiction. Nothing may be hid from them, even the most secret manufacturing processes; disloyal industrialists being liable to severe penalties. On their side also, the observers would be severely dealt with should they betray secrets submitted to their investigation. In addition, the observers being attached directly to the Committee for National Mobilization, this latter organization finds itself possessed of an effective supervision of industry.

But this willing or unwilling fusion of the technical military services and industry has seemed insufficient. By a Decree of November, 1929, the Government assumed the regular role of directing the working of factories in time of peace. According to the terms of this Decree, the Ministry of Corporations fixes periodically a list of industries considered "essential" for National Defence, i.e., everything concerned with metallurgy, textiles, chemical products, power, woodworking, etc. No factory which has the least connection with any of these categories has, from now on, the right to set up, to expand, or even to alter its plant without the authority of the Ministry of Corporations; that is to say, actually the Office of Civil Mobilization, whose concurrence is also necessary. And since this authority is only given conditionally, it is clear at once that the Decree institutes a constant intervention by the State in every factory capable of armament manufacture.

Even more, advancing yet further on the road of ordered economy, a Law of 2nd January, 1933, practically imposes State control over all industrial production. The regime of authorization, hitherto limited to "essential" industries, is extended to cover a host of others.

It is in any case certain that this strict control of industry by governmental authority gives practically unlimited means of action to the Bureau of Civil Mobilization. Undoubtedly this is not the only object of this institution, which is first of all based on the desire to fight the world crisis by a better organization of the "economic effort" of the country. But National Defence does not miss the chance of availing itself of such a happy state of affairs.

It is this same spirit which, in 1929, was responsible for founding the "National Council of Research," under the presidency of Senatore Marconi. The chief task of this Council is, in fact, to co-ordinate all scientific activities, particularly inventions, with a view to the technical and industrial progress of Italy. Here again the Bureau of Civil Mobilization is associated with this co-ordination. Its representatives make known to the Council the kind of research which is of interest to the Navy, Army and Air Force, and the activities of scientists and inventors are guided into these channels.¹

This permeation of industry by the various services of national mobilization implies the necessity for a high standard of technical ability among those who take part in them. In order to provide this, a "section of technical studies of military importance" was set up in 1925 in the "Engineering School," which is attended each year by a certain number of officers and of young men intended for civil careers, all of whom on

¹ It would be interesting to learn the part played by this organization in the progress of aircraft material during the last few years.—AUTHOR.

leaving receive the diploma of "Engineer of Artillery." From amongst these are recruited the "observers," the factories specializing in munitions choose their engineers, and the rest of industry finds men qualified to assist in its preparation to turn over to war manufacture.

Thus, in the case of war, or even of political tension, public authority in Italy will be in a position to control industry and to derive the greatest benefit therefrom—on the understanding, however, that they can ensure the basic requirements, i.e., trained labour and raw materials.

It was to this end that in May, 1931, a law was passed governing the conditions of war discipline, and defining the obligations relating to civil mobilization. All citizens of both sexes, over 14 years of age, are liable for civil mobilization, and to this end may be earmarked either to serve in public administrations or in private establishments working for National Defence. From that time, they are bound by rigorous obligations of attendance, obedience and work. Thus the personnel of State undertakings will be under the jurisdiction of military tribunals, and every worker or employee in a mobilized concern will be liable to the same penalties as military deserters in peace if he does not fulfil his duties. The pay and treatment of the various categories of mobilized civilians will be the same as for soldiers. As to their recruitment, this will be undertaken locally by "Committees of Civil Resistance," working in each commune under the presidency of the mayor, which are empowered to requisition everything they consider necessary. When one adds that these committees are also responsible for directing public opinion and for propaganda, and that the Secretaries of the local Fascist party also form part, one can see what powers of pressure are in the hands of the authorities.

Lastly, by a Decree of 2nd March, 1933, an "Office of Commercial Information" was instituted, also attached to the Ministry of Corporations; that is to say, actually to the Bureau of Civil Mobilization. The same methods of investigation used by industrial observers with regard to factories are also in force between this office and commercial concerns.

By this means, the Bureau of Civil Mobilization can keep itself informed as regards stocks, imports and the distribution of everything connected with National Defence, and can influence the "economy" of the country, even in peace time. It is certain, for instance, that proposals for commercial agreements with foreign countries, lists of subsidies granted by the State, programmes of public works, etc., which concern wholly or in part the Ministry of Corporations, are submitted to the Bureau of Civil Mobilization. The latter find themselves, on their side, in a position to decide on an ultimate policy with regard

to raw materials, finished or semi-finished goods, and to draw up without difficulty plans for imports, purchases, requisitions, restrictions, transport, etc., necessary in time of war, whether on behalf of military, naval or air manufactures, on behalf of the economic activities of the country, or on behalf of other requirements of the armies or of the population.

Preparation for war in Italy is thus notably advanced. Not, to be sure, that it has reached its limit, since this gigantic enterprise, closely allied to national life, is in a constant state of gestation. During the course of the month of February, 1933, the Supreme Commission of Defence held no less than seven long meetings, all presided over by Mussolini in person, during which the chief questions studied by the Bureau of Civil Mobilization were brought under review and examined.¹

In making known to the public the duties and activity of the Supreme Commission and its dependent bodies, Signor Aldo Valori stated: "In fact, the universality of the structure of our regime suppresses all interference, overlapping, bureaucratic difficulties. . . . The technical organization of the nation for war proceeds *pari passu* with that of the armed forces, and with that of the spiritual preparation of the new generation under the flag of the Dictator. . . . In time of danger, the spirit must not betray matter. But it is no less necessary that the latter must be subordinated to the former."

BELGIUM.

Certain facts, and in particular a report² by Lieut.-General Giron, Chief of the Services of the Mobilization of the Nation, show that efforts undertaken in a free country need not be wholly in vain. Certainly general conditions in Belgium are far from favourable to the organization of the nation for war. To begin with, in the last War the almost complete and permanent invasion of Belgium did not permit the nation to gain proper experience in this respect; it has to learn from others. In addition, the smallness of the country and the feeling of weakness *vis-à-vis* very powerful neighbours makes many Belgians think that industrial mobilization may run the risk of becoming quickly inoperative. As a matter of fact, General Giron does not try to disguise the difficulties which would accompany public bodies and administrations when adapting themselves to the new and complex problems of National Defence. But on the other hand, the common sense of the Belgians, and also no doubt the zeal and cleverness of certain individuals, have had their

¹ The satisfaction justly felt by the rulers of new Italy in the work done found expression in the compliments paid by the Duce to General Dallolio at the close of the work of the Supreme Commission, and also in an article published at the same time by Sig. Aldo Valori in the *Corriere della Sera* (22nd February, 1933).

² Published in April, 1932, in the *Bulletin Belge des Sciences Militaires*.

effect. In short, in the preparation of national effort in case of war, Belgium has already obtained notable results.

One of the characteristics of the Belgian organization is that it aims at uniting the problem of the manufacture of war stores with that of the whole aspect of national mobilization. True, each is dealt with by a particular organization, but the whole is vested in the person of one chief.

In fact, from the first day of mobilization, under the Minister of National Defence, there is set up a "Direction de Ravitaillement et des Evacuations de l'Intérieur" under General Giron. This "Direction" co-ordinates the eight supply sections of the Ministry which cater for the needs of the Army, viz.: "Armaments and Munitions"; "Intendance"; "Chariots Automobiles et Carburants"; "Génie"; "Santé"; "Protection contre les gaz"; "Service vétérinaire et des Remontes"; "Aéronautique." The result is that it becomes the duty of the Director, appointed in peace by the "Ravitaillement et Evacuations de l'Intérieur," to set in motion the sub-sections for everything concerning supply in time of war, and particularly manufacture. But, on the other hand, by Royal Decree of 26th December, 1926, there was created a Permanent Commission of the Mobilization of the Nation, whose president since 1931 is General Giron. The result is that this general officer, with the title of "Chef des Services de la Mobilization de la Nation," is in a position to know, to guide and to co-ordinate all the work of mobilizing the resources of the country, not only from the point of view of army requirements but in every direction.

As regards the special needs of the Army, the General Staff makes known their estimate of requirements, anyhow for the first months of a struggle, for supplies of every kind for the mobilized Army. Starting from this standpoint, the supply services of the Ministry of Defence take measures to satisfy the demands of the High Command first of all from national industry. Each supply service recruits those factories which appear able eventually to undertake the specific manufacture, then proceeds to make contracts with industrialists or to earmark their installations for requisition. The potentiality of Belgian industry being considerable, this is generally limited to the most important concerns. Again, it is necessary to select them by reason of their actual capacity, and their lay-out, which entails a detailed study and results in the establishment of dossiers. If the services of the same factory are claimed by more than one supply service, the designated Director of "Ravitaillement et des Evacuations" has the casting vote.

In peace time the State does not possess any means of legal constraint to induce the industrialists to prepare by themselves the change-over

of their factories to war production, or even to inform the military authorities of their capacity production. No laws on the organization of the nation in case of war exist in Belgium. No doubt the goodwill and patriotism of directors of concerns can be taken for granted, but that cannot well be exploited beyond a certain point. No doubt it would be permissible, on the outbreak of a struggle, to make use of requisitioning, but this proceeding, in most cases, makes for mediocre output. The best way to associate industrialists with the work of preparation and to ensure their complete concurrence is by making use of a system of "deferred contracts."

The "deferred contract" is first of all a double contract. The industrialists agree to hand over to the State, within well-defined conditions, certain products of a specified kind, quantity and quality. Reciprocally, the State guarantees to the industrialist the supply of raw materials which he requires. But the contract also constitutes a trading agreement, since both parties agree upon the prices to be charged mutually, both for manufactured goods and for raw materials. It is specified, in fact, that these prices will be calculated on the basis of the average prices which have obtained during the 80 days preceding mobilization, exception being made in certain specific cases and excluding certain possible corrections. The contract is, in fact, a guarantee, in as much as it determines on the one hand the conditions of inspection and acceptance of the goods by the agents of the State, and on the other hand the mode of payments for the benefit of the industrialist; it is provided, in particular, that advances made for the purpose of paying the wages of the labour employed, shall be authorized by the Treasury every 40 days.

It would seem that such a system allows the Minister of Defence largely to calculate what he can really rely on receiving from each factory, since it is obviously to the interest of every industrialist to arrange for the largest possible output, though not beyond that point under pain of fines and penalties. In addition, there are apparently certain financial advantages to the State in this preliminary agreement concerning prices. One can conceive that in adding up the disbursements for which the State is liable, and provided one allows a prudent margin, it becomes possible to make a rough estimate of the cost of war stores *in toto*, and to make provision for the financing thereof.

Again, industrialists, freed from the fear of having their factories requisitioned, assured of getting at normal prices essential raw materials and of working at the same profits as in peace, assured also of precise payment, and able to count on the necessary funds for the payment of workpeople, in spite of restrictions or disappearance of bankers' credits,

show a notable activity in preparing for the manufacture of war stores. General Giron pronounces himself well satisfied with the results obtained by this system of mutual collaboration.

But the Belgian National Defence, in concluding deferred contracts, assumes the obligation of supplying industry: a complex duty, above all in case of war when *force majeure* combines with speculation to make for a scarcity of commodities. Besides, Belgium lacks raw materials, even coal, of which she has insufficient for her own needs. It is true that, by way of compensation, being from the industrial point of view a country producing manufactured goods, and from the commercial point of view a country across which goods pass in transit, she possesses within her borders very large stocks. In addition, finding herself the immediate neighbour of the three richest countries of Europe—France, Germany and England—and of a state economically very active, viz., Holland, she is well placed to obtain help from abroad.

In case of war, it is incumbent on an "Office des Approvisionnements" to provide the necessary supplies, whether to industry, the Army, or to the civil population. But since this office, lacking legal existence, can only be set up on mobilization, a "Commission des Approvisionnements," erected under the Ministry of National Defence, and whose president is naturally General Giron, effects in peace-time the work of planning and preparation. This Commission comprises, amongst its members, chiefly reserve officers who, owing to their specialized knowledge and experience, render the greatest service in this respect.

The Commission des Approvisionnements follows the situation regarding existing stocks, stocks in the possession of industrialists or retailers, stocks of wholesalers, and stocks in transit. Taking into account the seasonal fluctuations and the inevitable shrinkage which invariably takes place in time of political tension, the Commission studies and selects appropriate means of exploitation: deferred contracts entered into with commercial concerns, by which the latter bind themselves to supply the State with certain commodities, and the State takes delivery at adjusted prices, and pays over a certain predetermined period of time; requisitions for others, particularly coal; even confiscation of goods belonging to enemy subjects. Here truly is industrial mobilization.

Thus kept informed regarding all commodities existing inside the country, the Commission of Supplies is in a position to estimate what must be bought abroad, and when to seek the most advantageous source of imports, to choose the intermediaries, and even to work out the best plan of restrictions on civilian consumption. Since foreign purchases imply payments in foreign currency, the Commission has selected those

exporting industries which can most conveniently be carried on in case of war, and has assured them of a supply of raw materials, on condition that they credit the State with the whole or part of the currency which they themselves obtain through their export trade.

Over and above this, the very fact that the Commission of Supplies exists, and that it is in constant touch with business men and technical officers, has in itself a good effect as regards preparation as a whole. It is from this particular fact that the supply section of the Ministry derive great advantage, when making proposals for deferred contracts, from the advice of specialists in every walk of life.

Moreover, since a high proportion of munitions made in large quantities by non-armament firms are apt to be rejected, an enormous Inspection Service has been created in Belgium, with such care that every delicate operation of supervision, inspection and delivery should work without a hitch.

All these measures, if they are not to remain academic, must be rounded off by others concerning not the mere military side but the whole of the nation. All that concerns individuals, property, necessities of civilian life, internal order, communications, transportation, labour, foreigners, evacuation of civilians, financial effort, propaganda, anti-aircraft defence of the territory, must all be provided for so as not to run the risk of a vast disorder which will paralyse the country in war and, in consequence, the armed forces.

Now all the arrangements which concern or constitute national mobilization cannot obviously be made by the Ministry of Defence; this is the task and duty of other departments. In this respect Belgium appears to encounter difficulties: not that the principles remain unrecognized. Directly after the War the Government created an "Interministerial Commission of Mobilization." But this organization, meeting at rare intervals, soon ceased functioning. In 1926 it gave place to the "Permanent Commission of the Mobilization of the Nation," whose mission was defined in the Decree in very general terms as "the necessity to obtain, in case of hostilities, the maximum output of national activity" on the "indispensable co-ordination of the measures required to satisfy the needs of the army and of the civil population," and on the "importance of studies to be undertaken and which cover a wide and varied domain," etc. The Commission must submit the results of its studies to the Premier. The latter, if he approves of them, will make them known to interested departments for execution. In point of fact, over a period of five years, the Permanent Commission held in all four plenary sessions and, in spite of the work of the sub-commissions and of the Secretariat, the results attained remained insignificant.

However, in 1931 the turn of external events, particularly the progress of the Pan-German movement in Germany, had the effect of reviving the question of National Defence. This preoccupation was echoed in Parliament, when on 1st July, 1931, the attention of the Government was drawn to the fact that the Permanent Commission of Mobilization had effected no single practical result. Thereupon the Premier appointed General Giron to be President of the Permanent Commission, and asked him for a programme of work. The programme was approved on 16th September, 1931, and from that date the Commission functioned regularly at weekly meetings.

In the preparation of "civilian" mobilization there are two different kinds of measures. Those which concern only one ministry, such as the mobilization of the central administration, of external services, or of bodies working in connection with one department. As regards these, the Permanent Commission can only intervene indirectly, since each ministry is responsible for its own preparation or the lack thereof. On the other hand, there are other measures to be taken which may be considered interministerial. These are the business of the Commission. But, having completed the study, it remains to submit the conclusions thereof to interested departments, or else to the President of the Council of Ministers. Again, execution is out of the hands of the Commission. The impression is gained that the latter, possessing only the right to propose and to persuade, often comes up against obstacles it cannot surmount.

General Giron in addition makes known the principal subjects undertaken by the Permanent Commission, which need only be enumerated in order that their complexity and importance may be realized. Among these are :—

- Protection of the population against air attacks ;
- Security measures to be taken in districts exposed to enemy attack ;
- Organization of the Government in case of war ;
- Supply services in war time ;
- Industrial mobilization ;
- Safety of the State, particularly in respect of control of movement, surveillance of the frontiers, censorship ;
- Evacuations, in particular that of livestock in eastern districts ;
- Mobilization of the mercantile marine, and the creation in time of war of a " Superior Maritime Commission " ;
- Exploitation and regulation of ports, particularly Antwerp and Ghent ;
- Mobilization of civil aviation ;

Rights and duties of voluntary civil aid ;

Production of corn, coal, etc.

But in spite of having been studied, conclusions have only been reached on a few of these problems, however essential. The Chief of the Mobilization Services attributes the delay to the anxiety of public authorities, "who fear," he says, "that during the present economic crisis throughout the country, a complexity of arrangements in case of war would only add to the country's difficulty." It is true that during the previous period of prosperity, the progress made was no more rapid.

On the other hand, in default of decisions by the Government, it is already something accomplished that suitable measures to organize the national effort have, at least, been studied by a body of competent men. By this means the disadvantages of improvisation will be reduced, since, in any future crisis the directors will have at their disposal cut-and-dried schemes in advance. Such as it is, therefore, the work of the Belgian Permanent Commission appears useful. Various signs indicate that Belgium is aware of the necessity of going into the question of her system of defence. The recent decision taken by the Government to allot considerable credits to the organization of the frontiers and to the equipment of the Army, is proof of this state of mind ; and the same reasons without doubt will cause her to push forward with the organization of the country for war.

NOTE.—An article on "The Organization of the French Nation for War" appeared in the JOURNAL of May, 1927, p. 376.—EDITOR.

GERMAN AVIATION TO-DAY

In compiling this article the following authorities have been consulted :—Jane's All the World's Aircraft ; Whitaker's Almanac ; The Encyclopædia Britannica ; The Statesman's Year Book ; The Annual Register ; Armament's Year Book ; Keesing's Contemporary Archives ; "The Times" ; "The Morning Post" ; "Flight" ; "Neues Tagebuch" ; and the Air Ministry's "Report on the Progress of Civil Aviation."

BEFORE attempting to describe the position of aviation in Germany to-day, it will be helpful to review briefly the general, as distinct from the political, conditions of that country in relation to the air problem.

The area of Germany to-day, excluding the Saar territory, is 180,985 square miles, or just about double the size of Great Britain. The population is more than one-third as great as that of the British Isles—the census of 1925 gave a total of 62,410,619 as against a round 45,000,000 for England, Scotland and Wales.

The physical and climatic conditions are favourable to aviation. The only high mountains are the Alps on the southern frontier, the highest point in Germany being 9,738 feet. The Schwarzwald range in the South-East never rises above 5,000 feet. It is only the Alps, therefore, which offer any obstacle to aircraft. Northward of the Alps, from East to West, the highlands run from the southern border as far North as the line Essen-Hannover-Dresden. The rest of Germany consists of lowlands, bounded on the Baltic coast by extensive sand dunes and by a network of lakes in East Prussia. The southern parts are more wooded than those in the North, and though largely covered with forests, there are many clear areas. Climatically Germany has characteristics midway between western and eastern Europe, and little hindrance is offered to flying.

TREATY RESTRICTIONS.

The Treaty of Versailles was particularly severe and prohibitive on Germany in the matter of aircraft. The armed forces were not to include any military or naval air forces ; no dirigibles were to be maintained ; all air force personnel was to be demobilized. For six months after the

coming into force of the treaty (until June, 1920) the manufacture and importation of aircraft and engines were wholly prohibited, and when the treaty came into force all aircraft, with the exception of a few to assist in mine clearing, had to be delivered to the Allies. Engines, component parts and accessories all had to go; the list even included such items as aircraft instruments and cameras. Sheds and shelters for aircraft also had to be demolished. Until 1923 Allied aircraft were allowed complete freedom of passage over and landing in German territory. It was not until five years after the War that Germany regained her sovereignty over the air above her territory. Apart from these clauses no specific mention was made of civil aviation.

During 1919-1922 the Inter-Allied Commission of Control was engaged in seeing that the terms of the Peace Treaty were carried out. During that time no less than 14,225 aircraft were destroyed, 3,174 were handed over to the Allies, and about 1,000 were exported to neutral countries. As regard engines, 34,726 were destroyed or handed over, leaving under 300 in Germany. Of the 17 airships which still existed, 8 were surrendered and 9 destroyed: 490 sheds and hangars, 14,568 machine guns, and 247,931 bombs were either destroyed or handed over.

The embargo upon aircraft construction expired in June, 1920, and the Germans at once started building again, but since the surrender of all military aircraft had not been completed, the Allies held that new construction was to cease until the terms of the Treaty had been fulfilled. These newly constructed aircraft, therefore, had to be handed over.

All this time civil aviation in Germany had only been kept alive in any active form by a hundred obsolete war-time aircraft, which the Allies sold in 1920 and permitted to be used. But Germany was only waiting for the departure of the Allied Air Commission. She was at all times fully alive to the value and importance of civil aviation, and during this repressive period a large amount of preliminary work was carried out in aeronautical research and in the surveying of air lines. Even the obsolescent aircraft allowed her, flew nearly a million miles between April and October, 1921, and carried some four thousand passengers.

In April, 1922, came a shattering blow to her hope of reviving aviation. The Council of Ambassadors issued certain rules restricting the design of new aircraft. The main restrictions were that the maximum speed was not to exceed 105 m.p.h.; engines were not to exceed 60 horse-power, and ceiling was limited to 17,000 feet. Airships were not to exceed 30,000 cubic metres—about half the capacity of the largest type built in the War.

The object of the Allies was to ensure that Germany should not produce aircraft of any military value ; but not unnaturally she retorted that these rules had been conceived in a spirit of commercial competition. Apart from aviation within her own borders and air communication with her neighbours, Germany realized that she was deprived of a considerable market for commercial aircraft in those smaller countries of the world which, in consequence of the War, had been unable to obtain them up to that time. Curiously enough, these restrictions, if they reacted unfavourably on Germany, proved to be of great benefit to aviation in general, for undaunted by their limitations the efficient designers in that country produced what we know to-day as the "light aeroplane." An analogy to this example of cause and effect can be seen in the British motor-car industry where, in consequence of the horse-power tax, we have led in the production of the "light car." Another effect of these measures was that German aircraft manufacturers opened up factories in other European countries, such as the Dornier works in Switzerland.

PRESENT-DAY RESTRICTIONS.

By 1926 it was realized that it was both impossible and unfair to limit German civil aviation any longer ; the only anxiety in the mind of the Allies was to ensure that this new vehicle should not be transformed into an effective weapon for war. The crippling restrictions were removed and a new agreement came into force on 9th August of that year. As this is still operative, it calls for some comment. It may be summarized as follows.

Under the existing agreement, German civil aviation must be kept within the limits of normal development in regard both to commercial aviation and flying training schools. No aircraft equipped with any warlike apparatus is to be built, maintained, imported or introduced into traffic. In the case of international competitions or for establishing records, high speed aircraft having the technical characteristics of modern fighting aeroplanes may only be built under a special licence, and their number must not exceed that "normally in use in other European countries for the same purpose."¹ Only a few pilots may be licensed for the purposes of flying these special aircraft. It is also laid down that no subsidies shall be granted to "associations, societies or individuals" who devote themselves to amateur aviation or to elementary or advanced pilots' training ; in fact it appears to limit subsidies to regular air transport lines and to the aircraft industry.

¹ This proviso appears ambiguous. Other countries building special aircraft for height or speed records are not likely to make public the number, much less the designs.

No flying training of a military character is permitted, nor are the Army or the Navy to employ aircraft for any military purpose, with the sole exception of ground anti-aircraft measures. Civil aircraft may be used in connection with anti-aircraft gun and searchlight practices. Naval and military officers may learn to fly privately, without any official assistance whatever, but their number is never to exceed 36, and a nominal list is to be made available.

Automatically controlled aircraft are prohibited.

The police force may include 50 trained pilots in its ranks to enable it to supervise commercial aviation efficiently; but they are not to engage in aviation themselves. The police are not to possess aircraft.

Four major air ports are authorized: Cologne, Frankfort-on-Main, one North of Cologne, and a fourth South of Frankfort as selected by the German Government. Twelve other minor flying grounds are permitted, and there are limitations on the size and number of buildings.

Gliding is permitted, but lists of glider pilots are to be published annually.

GERMANY'S AIR PROBLEM.

Germany welcomed the removal of the irksome restrictions on design, and proceeded to organize and equip her aircraft industry and air lines until to-day she possesses the greatest commercial air organization in Europe. But her air problem is far from solved.

In common with other nations, she realizes that no naval or military forces can be efficient without aircraft to assist them, whether by intimate co-operation such as reconnaissance, artillery observation or photography or by the wider application of aircraft in attack on land or sea objectives. Then there is the question of air defence, not only for her naval and military forces, but also for the country at large. She argues, and logically, that no real measure of air defence can be achieved without aircraft, which must comprise fighters and bombers. However good the ground equipment and personnel, without fighters to ward off hostile air attack the efficiency of an army or a navy is greatly impaired. However efficient the ground anti-aircraft measures, without fighters the country is open to air attack. The true fighter is not a commercial proposition, and they are expressly excluded under the Allied regulations. The bomber is in a different category and will be discussed later.

Commercially, the German air problem resolves itself into two aspects—internal and external air lines. Internally, the country is sufficiently large to make flying a sound commercial undertaking. Externally, it would seem that Germany, defeated for the moment in her pre-War

competition with England as carriers of the sea trade of the world, is turning her thoughts to the expansion of Continental and overseas air routes. She now has air lines extending to practically every capital in Europe as well as a regular airship service to South America.

These requirements call for aircraft of many different types, from the fast passenger carrier with a range of 750 miles in five hours to the slower multi-engined thirty-four seater.

On the seaplane side she has developed the large flying-boat, and for the overseas routes she has produced the airship "Graf Zeppelin," with over fifty uneventful trans-atlantic flights to her credit.

ESTIMATES AND EXPENDITURE.

In common with other countries, civil aviation in Germany has always been heavily subsidized, and the Air Estimates for 1934 show a huge increase on those for 1933, which were already very much higher than in earlier years. The following are the figures:—

Year	Total Vote Marks	Air Transport Subsidy Marks
1932.. .. .	44,000,000 (approx.)	17,000,000
1933.. .. .	78,000,000	} Not known
1934.. .. .	210,000,000	

Of the 1934 Estimate, which is equivalent to about £10,500,000, about £2,500,000 is for air defence. In spite of the prohibitions in the 1926 agreement, large sums have been voted from time to time for "training professional pilots" and "promoting air-mindedness."

PROGRESS OF CIVIL AVIATION.

The following figures showing comparative performances in 1932 are of interest:—

	Miles flown	Passengers carried	Goods tons
Germany.. ..	5,712,117	98,489	2,059
France	5,487,512	36,892	1,444
Italy	2,889,452	43,300	901

In 1933, during the months 1st May–31st August, the main air line, the Deutsche Lufthansa, carried 56,584 passengers—an increase of over 25 per cent. on the same period in 1932. The express freight services carried 452.4 tons of freight—an increase of 12 per cent., and 236 tons of air mail. Regularity of operation was 99.3 per cent. as compared to 96 per cent. in 1930.

TYPES OF AIRCRAFT.

An analysis of the German aircraft industry for 1932-33 shows that there are about seventy-three different makes and types in production or building. They are as follows :—

- 22 light aeroplanes.
 - 6 experimental.
 - 4 for special orders, such as racing or research.
 - 5 for training.
 - 4 flying-boats for passengers and freight.
- 20 landplanes for passengers and freight, with maximum speeds below 130 m.p.h.
 - 4 landplanes for a small number of passengers or freight with maximum speeds above 150 m.p.h.
 - 3 so-called fast tourers or "sports aeroplanes" with speeds above 150 m.p.h.
 - 5 high-performance fast mail or freight carriers with speeds above 140 m.p.h.

An examination of some of these types brings to light some interesting facts. In practically all cases manufacturers are constantly introducing newer designs or improvements on existing well-tried types. All training aeroplanes are biplanes, but all others, with two exceptions, are thick-wing monoplanes: this is the opposite to Great Britain, where the monoplane is the exception.

The experimental types include autogiros—four of an unorthodox design; tail-less and with variable wings; also the famous "DO X," the largest flying-boat in the world, details of which have already appeared in the JOURNAL.

The flying-boat types consist of the well-known Dornier "Wal" and "Super Wal," which are also built in other countries. They are of a rather inefficient monoplane type, designed to carry ten to twelve passengers and mail; they take a long time to get off the water, and are not very seaworthy.

The bigger landplanes, as used for general service on the air lines, have accommodation for some twelve to sixteen passengers, and the maximum speed of the older types is about 120 m.p.h., though replacement machines are steadily being produced with higher speeds. The Junkers "G.38," of which there was only one in operation in 1933, is the largest passenger-carrier, and is comparable to the Imperial Airways "Heracles" type, which carries thirty-eight passengers.

Comparative characteristics are :—

				"G.38"	"Heracles"
Engines	..	..	..	4 800 h.p.	4 555 h.p.
Wing area (sq. ft.)	..	..	..	3,285	2,990
Weight empty (lbs.)	..	..	..	14,900	33,850
Normal fuel (lbs.)	..	..	..	2,750	
Crew and pay load (lbs.)	..	..	..	2,850	19,050
Gross weight (lbs.)	..	..	..	30,000	52,900
Maximum speed m.p.h.	..	..	..	125	134
Normal range (miles)	..	..	..	450	746
Crew	..	..	..	4	7
Passengers	..	..	..	38	34

A smaller type has two single engines and carries six passengers at a speed of over 150 m.p.h. for about five hundred miles. There is also a very interesting three-engined monoplane, which will carry seventeen persons at a speed of 168 m.p.h. This latter machine has a ceiling of 19,000 feet and a cruising range of over 500 miles. Another type in this category is the "H.E. 70," of which there was one in service in 1933. In view of the fact that this is reported to be the design adopted for the standard German fighter, it is of interest to compare some of its chief characteristics with those of a modern R.A.F. two-seater fighter-bomber :—

				Heinkel "H.E. 70"	Hawker "Hart"
Wing area, sq. ft.	..	..	..	48 ft. 6 ins.	37 ft. 3 ins.
Disposable load, lbs.	..	..	..	2,220	
Weight loaded, lbs.	..	..	..	7,380	4,320
Max. speed, m.p.h.	..	..	..	234	184
Climb, mins.	..	..	..	7 to 6,560 ft.	8 to 10,000 ft.
Service ceiling	..	..	..	18,920 ft.	
Range, miles	..	..	..	620	
Accommodation	..	..	..	Crew 2 Passengers 5	Crew 2
Engine	..	..	..	1 of 660 h.p.	1 of 525 h.p.

It is well to bear in mind that the German type is quite new, whereas the "Hart" has been in production for some years. There are reported to be 130 of these H.E. 70 aeroplanes built, though without engines.

The five high-performance "mail carriers" are of particular interest. Their major characteristics are:—

	<i>B.F.W.</i> "M 28"	<i>Dornier</i> "DO C2"	<i>Dornier</i> "DO F"	<i>Dornier</i> "DO K"	<i>Focke- Wulf</i> "A 43"
Type	Land	Floats	Land	Land	Land
Crew	1	1	2 or 3	2	1
Passengers	0	0	0	10	2
Engine No. & h.p. ..	1 of 500	1 of 650	2 of 550	4 of 240	1 of 220
Span	—	49' 3"	91' 10"	82'	32' 10"
Weight empty, lbs..	—	5,950	10,500	8,200	1,600
Disposable load, lbs..	1,100	1,320	7,120	5,400	880
Max speed, m.p.h. ..	158	149	155	143	158
Climb to 1,000 m. mins.	4.2	3.5	—	4.2	4.5
Ceiling, feet	14,430	19,680	15,420	19,680	16,730
Cruising range, miles	1,180	435	1,528	497	652

It will be noticed that these are high speeds, particularly in the case of the "DO F," with its big available load of two tons. It is reported that this type is earmarked for the standard German bomber, that 52 have already been built, and that over 200 more are to be produced shortly. It is also alleged that the performance figures given above are under-estimated. A maximum speed of 200 m.p.h. is hinted at, with a greatly improved rate of climb with full load.

AIRSHIPS.

Although British and American airship development has been stopped as the result of tragedies, we cannot afford to ignore the possibilities of commercial travel by airship, for the regularity during the past few years of the cruises of the German "Graf Zeppelin" has proved the capability of maintaining an efficient airship service across the South Atlantic, at any rate. The service from Friedrichshafen to South America has been operated over fifty times with complete success. Future routes forecasted by Dr. Eckener are between Germany and Rio de Janeiro; Rio de Janeiro-Washington-Europe; North America-Northern Spain-Egypt-Aden-Dutch East Indies. He proposes to operate the Europe-America service every seven days, and the America-East Indies route every ten days.

Four new airships will be required, and they will each carry fifty passengers, half-a-ton of mail and 15 tons or so of freight. Their

¹ With pay load of 4,400 lbs.

cruising speed will be 80 m.p.h., and helium will be used instead of hydrogen. Heavy oil engines will be fitted, giving a total horse-power of 4,400. The cubic capacity will be 6,720,000 cubic feet, nearly double the size of the "Graf Zeppelin." The "L.Z. 129" is now building and should be ready for trials this autumn. An airship shed is to be erected in South America, the Brazilian Government having advanced £146,843 towards it.

It is of note that in this programme of ocean routes the only port of call within the British Empire will be Aden, and that at present this is only a provisional calling place.

AIR LINES IN OPERATION.

There are three main air transport companies. The biggest is the Deutsche Lufthansa A.G., which owns 145 aircraft, of which 11 are seaplanes. The Deutsche-Russische Luftverkehrs G. (Deruluft) operates to Russia through the Baltic States. They possess 11 aircraft. The third company is the Deutsche Verkehrsflug A.G., with 16 aircraft. In addition there are over fifty commercial ventures specializing in flying, but not operating regular air routes.

For flying training there are seven commercial flying schools and a large number of private schools all over Germany.

AIR PORTS.

There are twelve major air ports: Berlin, Cologne, Essen, Frankfurt-on-Main, Halle (Leipzig), Hamburg, Hannover, Kiel, Königsberg, Lübeck (Travemünde), Magdeburg, Munich; and about sixty-five other landing grounds. The latter possess facilities in varying degrees, and include seaplane stations on the Baltic and North Sea coasts. Some of the major air ports are equipped on the most modern lines and run with characteristic German efficiency. At Halle (Leipzig), for example, in August, 1932, it was noticed that the operation of refuelling the Dutch East Indian air mail was carried out within twenty minutes, whilst the passengers had refreshments in a well-equipped restaurant on the aerodrome. Nearby, under striped awnings, the local populace sat drinking their "bocks" and becoming "air-minded," whilst listening-in to music from the radio, which every now and then was cut into by an announcer in the control tower, who broadcast the arrival or departure of aircraft, ten of which were seen to arrive or depart within twenty minutes.

AIR ROUTES.

The whole of Germany is covered with a network of air routes, operating with varying degrees of service according to the period of the year. In summer additional holiday services are run. The autumn

services of the Deutsche Lufthansa in 1933 comprised 45 lines, 7 of which were reserved for mails and freight. These lines ran between 36 German trade centres and 28 foreign cities. The daily distance flown by this company was 23,300 miles. Night air services are increasing, with consequent additional saving of time.

Practically every European capital is served. The "Deruluft" line runs to Leningrad and Moscow. In Persia a German company was operating up to 1932, when services were indefinitely suspended. The airship service to South America has already been mentioned.

AERONAUTICAL ASSOCIATIONS.

There are a large number of aeronautical associations and institutes. The Royal Aero Club and the Royal Aeronautical Society have their prototypes. There are technical institutes, gliding clubs, and an association to encourage flying and "air-mindedness" amongst the working classes. The Deutscher Luftfahrtverband (D.L.V.) is concerned with sporting aviation; it is divided into twelve regional groups covering all Germany, and it keeps in close touch with the Ring der Flieger e. V., which is a club for pilots of the War.

There is also the Air Defence Corps, of which little is at present known.

CONCLUSIONS.

Germany has the biggest and most efficient civil air service in Europe, and this naturally gives rise to two pertinent questions:—

1. *To what extent could German commercial aircraft be used for military purposes?*

There is a good deal of misconception about the whole question of the adaptability of commercial aircraft for war purposes. To begin with it should be remembered that up to the outbreak of the War designers were concentrating mainly on the single purpose of producing a vehicle which would fly efficiently. Then they were called upon to solve the more complex problem of producing aircraft suited to military requirements. These again necessitated three different designs; the fighter, the bomber and the reconnaissance types were evolved.

To-day, air fighting and bombing demand not only special aircraft but special instrumental aids, such as gun and bomb sights, automatic pilots and other aids.

When the War ended civil aviation had to start by using military aircraft, but experience soon proved that they were unsuitable for commercial transport, for the following reasons. All aircraft design is a matter of compromise. One characteristic cannot be obtained without

sacrificing some other. Military requirements of modern fighting aircraft, for example, call for a rapid rate of climb, a high ceiling, easy manoeuvrability, and high speed that does not fall off at the operational height. To this end the super-charged engine has been produced. In the bomber special facilities have to be provided for sighting, and the arcs of fire for the defensive gun armament affect the structure design.

But civil design is quite different. The aim of the air transport operator was admirably summed up by the Managing Director of Imperial Airways in a recent lecture, when he described it as being "to carry the largest volume of traffic in the fastest time, in the greatest safety, regularity and comfort, and at the lowest economic fares." The design of the aircraft is, obviously, a most important factor in meeting these requirements. Pay load is the chief problem, and must govern the design if air transport is to pay its way. But, as always, there are mutually antagonistic features. Every pound of fuel carried is one less pound of useful paying load; the air liner must call at those centres of industry where the trade lies and, therefore, where air transport is needed: if the "jumps" between stopping-places are too long, then the aeroplane cannot carry enough useful load to pay for operating the line; if they are too short, then the benefit of air transport is largely discounted. The selection of refuelling places must also comply with the needs and demands of the collection and delivery of the passengers, mails and freight, the fulfilment of which is the sole reason, commercially, for the existence of the air line at all.

These are the outstanding reasons why civil and military design are diverging more and more. Guns could be fitted to fast mail-carriers or internal bomb racks could be mounted in the cabins of passenger-carrying aircraft. They could then be used with some effect against a nation which only possessed small and perhaps inefficient air forces and defences; but they would not be a serious menace to a Power possessing a well-equipped modern military air force and air defences. Armed merchant ships during the War were of considerable value, but they were never capable of engaging a cruiser designed as such.

If, therefore, German aircraft designers are concentrating on producing the best type of commercial aircraft to fulfill the economic requirements of air transport, their products will not be a serious menace; but the danger lies in the fact that there appears to be a tendency to produce certain types with military characteristics. Any financial loss in operating these on the air lines, due to their loss of efficiency as commercial aircraft, will presumably be borne out of subsidies. It is the single-seater fast mail-carriers in particular that should be watched.

There is also the question of the training of the personnel, not only in flying but in methods of attack and defence in the air. Both in fighting and in day bombing everything is done in formation. This calls for months of training. The actual fighting and bombing practices also necessitate progressive exercises to a well-defined schedule in order to gain and maintain efficiency. It is not seen how Germany can be carrying out such practices in secret, even though she may have the paper organization in readiness. In this connection, General Goering recently stated that it has been decided to establish "air offices" at sixteen strategical centres. Their duties will comprise air police, weather reports, construction of aerodromes, and problems of civilian defence and prohibited areas.

2. *Will Germany regain her place as an Air Power in the near future?*

During the discussions on disarmament, Germany consistently maintained that the conditions at present imposed on her regarding air, as in other forms of armament, are intolerable, and she left the League of Nations because the principle of "equality of status" which had been generally agreed to was being unduly delayed in application.¹ She declined to wait the two years proposed in the latest British Draft Convention² for other nations to decide whether they will agree to the total abolition of military aircraft. She has demanded immediately an air force of short-range aircraft (not bombers) equal to not more than 30 per cent. of the combined air forces of her neighbours, or to 50 per cent. of the French air force. She has already increased her aviation budget by 160 per cent. over that of 1933-34.

Obviously she intends to ignore the Agreement of 1926, and will, probably soon, come out into the open and form a military air force, not necessarily of an aggressive character, but with the avowed object of providing a measure of air defence. Nevertheless, it is well known that a true air defence cannot be obtained by the possession of fighting aircraft alone, and, therefore, Germany's present arguments for fighters must, logically, lead to a demand for, and the building of, bombers.

¹ See JOURNAL for November, 1933, p. 835.

² *Ibid*, February, 1934, p. 154.

BACTERIAL AND CHEMICAL WARFARE

SOME GERMAN VIEWS

SINCE the publication in the JOURNAL of an article entitled "Bacterial Warfare,"¹ a certain amount of attention has again been bestowed by foreign Service literature to this subject.²

The general attitude revealed therein seems to be that embodied in the 1922 report of the "Special Commission for Incendiary and Bacteriological Warfare" of the Disarmament Conference, namely, that any measures which are to be adopted for prohibition of chemical warfare, cannot go so far as to obstruct any scientific experiments in the sphere of chemistry and pharmacology unless it be desired to bring scientific progress to a standstill. In addition, the Commission came to the conclusion that it would be impracticable to attempt to prohibit preparation for bacteriological warfare. The best defence against such warfare, so ran the Commission's report, remained a high standard of general hygiene and the use of vaccines; nevertheless, these safeguards could not be regarded as guaranteeing immunity. The control of virulent bacteria is still impracticable. Consequently the possibility of bacterial warfare cannot be overlooked, even though the assailant in such a case must remain exposed to the repercussions of his own action. There is also the possibility of such weapons being adopted for use against animals that play any important part in war. Lastly, it has to be remembered that at least one army, that of the Soviet Union, has at hand a gigantic national organization, the "Osoviakhim," which devotes considerable attention to the whole subject of bacterial warfare.

In Czecho-Slovakia the matter has been discussed in the most influential circles.³ The conclusions do not differ very materially from those previously mentioned and already put forward in the JOURNAL. But great weight was laid on the possible work of secret agents in the dissemination of bacteria in time of war. It was thought advisable to recommend that the state should organize a bacteriological office and laboratory to study the best measures for enlightening the population

¹ R.U.S.I. JOURNAL, page 523 (August) 1933.

² Militär Wochenblatt for 1934—Nos. 25, 31, 36; these articles have been freely used in the following pages.

³ Lecture given in Prag on 30th October, 1933.

as well as for the selection of possible methods of combating such attacks. Another paper published in Prag at the same time contained an authoritative article discussing the dissemination of such epidemics by means of the common house-fly, these insects being distributed by aeroplane. The article does not appear to be at all far-fetched in its conclusions; the risk, if not very serious, is admitted.

Bacteriological warfare is, of course, a matter that is of greater import to national defence as a whole, or at best might possess some possible strategic significance. Chemical warfare, on the other hand, has a direct tactical interest, as indeed was experienced during the closing phases of the Great War on land. It is not surprising then that chemical weapons should be receiving serious consideration on the Continent. In fact the statement is now put forward in the German military press that no serious tactical scheme should leave out of account the possibilities inherent in this weapon. Its employment is regarded chiefly from two viewpoints: first, the use of evanescent gases (German green-cross and blue-cross projectiles of the Great War) which have an offensive value in that an attack over ground which has been bombarded becomes possible very shortly after the gas has been disseminated; secondly, and this appears to be the more dangerous group, the persistent gases (German yellow-cross and mustard) which can be employed to create actual obstacles on the battlefield or to close certain lines of approach to an enemy. The latter objects can be attained by disseminating the gas by any one of several methods:—

- (a) artillery and mortars;
- (b) armoured cars fitted with spraying gear;
- (c) railway trucks carrying tanks for spraying (these can infect railway tracks and a belt of ground 120 to 180 ft. in width);
- (d) specially fitted aircraft;
- (e) normal bombing aeroplanes;
- (f) man-carried containers for spraying by hand;
- (g) mines or explosive containers (these can be made so as to infect some 400 to 600 sq. yards).

By all or any of these various methods the efficiency of rearguard fighting in a retreat can be greatly increased. Cavalry detachments can readily close defiles, etc., which otherwise might require a brigade to defend. There is an endless field for the employment of this weapon, since it is easily used by the defence, whereas it imposes a serious handicap on the attack. Even where troops skilled in overcoming such chemical obstacles are employed, the loss of time involved in disinfecting operations may become serious. Consequently the possibility of laying such obstacles by means of armoured cars or tanks in the path of an advancing

hostile army or formation gains a very real importance, since the obstacles in question might be laid without any actual tactical encounter having taken place.¹

The result will be that any commander faced with a chemical obstacle of this type may, in the first instance, have to consider whether he can circumvent that obstacle rather than proceed to the laborious task of disinfection. When it has been established that the infected area is of considerable extent, there remains the last alternative, namely that of putting the whole of the marching troops together with their light and heavy weapons on motor transport, and traversing the area in this manner under cover of armoured fighting vehicles. Such troops must, of course, put on gas masks. Mounted troops or horsed columns can be put through a gassed area at a slow pace provided the horses are all equipped with gas masks and stockings. Lastly, the use of motor vehicles in gassed areas requires precautions: it is known, for instance, that fumes of mustard gas (dichlor-diethyl-sulphide) have a distinctly deleterious action on lubricating oil which involves a special air filter being fitted to the engines.

If disinfection of the ground seems to be necessary, the first thing to be done is to ascertain the extent of the infected area under cover of suitable weapons or a smoke screen. The Soviet Union forces are specially trained and equipped for such tasks; rifle regiments possess a special "chemical" platoon for dealing with gassed areas; these are specially clothed and provided with rubber boots or stockings (worn over boots and clothes). The remaining troops co-operate according to the needs of the task.

It is quite impossible to disinfect entire areas in this manner. Passages 8 to 18 feet in width are made across infected ground, and these alleys are sterilized by means of powdered chloride of lime which is scattered over the ground and then lightly worked into the surface. It is calculated that one square yard of ground requires $\frac{1}{2}$ to 1 lb. of chloride; this figure shows the weight of material necessary to disinfect sufficient ground for the advance of one or two battalions. Enough chloride can only be carried by combatant troops for one or two small disinfections; it needs the arrival of chemical units with their special equipment to disinfect even the small area named above. The Russians, who are undoubtedly highly trained in chemical warfare, also prescribe setting fire to poisoned ground; they spray such areas with a mixture of naphtha and petroleum and then set fire to it, reinforcing the burning effect with straw or dead vegetation. Flame projectors are most suitable

¹ It seems permissible to ask whether some such obstacles might not have found a profitable use during the retreat of the Fifth Army in March, 1918.

for the purpose and are carried by gas troops. In the absence of chloride and as a last resource it is possible to try scraping off the surface of the earth and throwing it down the wind. The Russians also use a system of gas-proof ground-sheets which are carried forward by advancing skirmishers under cover of a smoke screen, much in the manner of a relay race: but this seems rather a questionable method of advance.

When all is said and done, rain is the best and most effective method of neutralizing such poisoned ground. A sudden heavy downfall of rain will cleanse an area in 5 to 10 minutes.

Since the persistent gases do not become volatile at low temperatures, it might happen that troops may enter an infected area and remain unaware of it until the sun has betrayed the mist, drops and puddles of the poison. The vapour of yperite can only become harmful when the ground is warmed, so that gas masks must be put on at the very first trace of the gas. Nevertheless, troops that have been well schooled in gas warfare need not regard even such a situation as hopeless, so long as every man has his own mask and supply of chloride. Mustard gas takes a long time to permeate shoe leather, and dipping the boots into running water is moderately effective; the Russian soldier now carries a small bag of chloride expressly made for the cleansing of his boots. The real danger consists in bivouacking on infected ground, when the poison will penetrate clothing and attack the eyes. Troops so affected will almost certainly be valueless for further operations: they can only be withdrawn and handed over to the medical disinfecting stations with the utmost rapidity.

In the United States, Japanese, and other armies these stations now comprise railway or motorized cleansing trains, equipped for the disinfection of men, clothing, arms and equipment: new clothing and equipment is also carried and supplied by them. The capacity of such trains to disinfect and equip troops may amount to 1,000 men per hour. Even so, troops that have been reduced to such a plight will doubtless show numerous gas casualties which can only be treated in an ambulance or hospital.

Gas attacks from the air were not practised during the Great War; perhaps because, as German aviators declared, the high explosive bomb was regarded as the more efficacious. But views on this subject are now changing considerably. As far back as 1921, the American writer, Jones, stated that "gas-warfare from the air is simply a logical development of gas-warfare on the ground."¹ It is now being pointed out that whereas the gas shell contains only 12 per cent. of its weight of gas-

¹ See "International Aeronautics," 1921.

producing material, that proportion, in the case of air-bombs, rises to 50 per cent.

A further opinion on this form of attack is contained in the closing paragraphs of an essay contributed by Dr. R. Hanslian—perhaps one of the greatest living authorities on chemical warfare—to a recent German volume entitled "Defence Thoughts."¹ He says:—

"A perusal of foreign military manuals makes it more and more evident that the view is now widely accepted that any ill-considered use of chemical weapons, and even of non-lethal fog, may, on account of their fluidity, place the user's troops in grave jeopardy. Accordingly it would appear that authority to apply chemical resources should be confined to those higher staffs which alone can be in possession of full information concerning the battlefield; such authority cannot be granted to any headquarters below that of the division.

"The further impression derived from such a study is that there exists a clear appreciation of the military value of the chemical arm in all countries. The chemical weapon now ranks as a recognized arm along with every other combatant service; if rightly employed, it possesses considerable efficacy and is, therefore, of great military importance; in future wars it will replace the metal projectile in a very definite proportion. What this actual proportion may be, is yet a matter of uncertainty. But it is certain—and this much is perfectly clear . . . — not only from what we know and can state concerning the development of gas technique in foreign armies, but also by reason of the very incomplete acceptance of the 'Poison Gas Protocol' at Geneva—that no state aspiring to possess a modern armament will in the event of war hesitate to resort to the chemical weapon; every such state fully intends to do so."

¹ "Wehrgedanken," Hanseatische Verlagsanstalt, Hamburg, 1933. See also Reviews in this number of the JOURNAL.

BATTLE HONOURS

THE NOTABLE OMISSIONS

By C. T. ATKINSON and MAJOR H. FITZM. STACKE, M.C., p.s.c.

In February of this year, the War Office announced that, in view of numerous applications from regiments, it had been decided to reopen the question of past battle honours; and that regiments could submit claims for such additional distinctions as they might desire, the closing date for such claims being 1st July, 1935. In the last number of this Journal, Major T. J. Edwards explained the successive stages by which the present list of battle honours had come into existence. The question is now considered from a different aspect, namely the shortcomings of the existing roll of battle honours when considered in comparison with the general history of the Army.

FROM the earliest days of our Army's history the Colours of our regiments have been the symbol of their corporate existence; for two centuries and more they marked the position of the regiments in battle and formed their rallying point; and many gallant deeds were done in their defence. In 1882, however, it was recognized that "in consequence of the altered formation of attack and extended range of firing" Colours could no longer be carried in the field; it was nevertheless decided that the Colours of regiments should be retained; and it was expressly stated that the principal purpose for which they were thus retained was that of "affording a record of the services of the regiment, and furnishing to the young soldiers a history of its gallant deeds."

It is for this purpose that the names of past battles are emblazoned on the Colours; and ever since this custom was instituted these brief records of glorious memories have been to a great extent the focus of regimental tradition. "Dettingen," "Minden," "Albuhera," "Waterloo," these names and others have proved a potent factor in inspiring that strong regimental spirit which is the mainstay of our fighting units. Nevertheless the most cursory examination will show that the battle honours of many of our regiments at present fail to provide an adequate

record of their services ; several gallant feats of arms which form an essential part of our Army's history are altogether omitted ; some regiments have been fortunate in obtaining many distinctions, others with equally good records have but little to show ; in general, the whole roll of battle honours is not fairly proportioned, especially with regard to the first half of the Army's history. How this has come about has been fully related by Major Edwards in the preceding number of this Journal in his description of the gradual process by which the present roll of battle honours has grown. Here it is only necessary to emphasize that the custom did not become general until the beginning of the XIXth century ; that at first the grant of honours was more or less optional and quite unsystematic ; and that no attempt was made until 1882 to consider on any kind of system the commemoration of the campaigns of the XVIIth and XVIIIth centuries. Even now, and despite the efforts of the Alison and the Ewart Committees, these earlier campaigns are most inadequately recorded. Out of the whole list of some 210 names which form the present record on the Colours of the history of the Army before the last War, 7 only belong to the period between the Restoration and the death of Queen Anne, and about 30 from that date till 1793, as against about 70 for the period of the French Revolution and the Napoleonic War, and another 100 from 1815 to 1914.

This may be put in another way by saying that the ten senior regiments of the Line have between them only 35 names on their Colours for the period between the Restoration in 1660 and the French Revolution in 1793, and, since many of these names are borne by more than one of these old regiments, this represents only 14 of their engagements during this period recognized by battle-honours. On the other hand, the five junior regiments of infantry¹ have together 106 names, representing 52 separate engagements or campaigns, for the equivalent period from 1793 to 1914. Further, out of the ten old regiments mentioned above, three (the 5th, 6th and 9th of the Line) have only two battle honours apiece to record more than a century of honourable service before 1800, whilst another famous old regiment, the Royal Fusiliers, has only one solitary battle honour ("Namur, 1695") to show for that same long period.² On the

¹ As the list stands at present, excluding the disbanded Irish regiments. These five present regiments represent, of course, seven old numbered regiments *plus* the Rifle Brigade. The latter has had four battalions during much of its comparatively brief career ; on the other hand, the Royal Scots have had two battalions ever since 1661 ; but again three of the junior regiments owe several of their battle honours to 2nd battalions existing during the Napoleonic War. The comparison cannot be made exact, but for the present purpose it is fair enough.

² An even more striking instance is that distinguished cavalry regiment the 8th Hussars, which, despite much hard service, has at present not one single battle honour to record the first 110 years of its history.

other hand, the youngest of the Foot regiments, the Rifle Brigade, whose distinguished career only commenced in the year 1800, was granted no less than nineteen battle-honours for the campaigns of the ensuing fifteen years.

It will be seen that there is an entire lack of proportion between the earlier and the later periods. This disproportion is not to be ascribed to any lack of actions deserving of honour in the earlier phases of the Army's history; they were anything but periods of profound peace. A few regiments, it is true, were unlucky in missing several opportunities of active service; the greater number have been unlucky from another point of view, in that their services have so far not received due recognition. To some extent this lack of recognition has resulted from a want of knowledge as to the earlier wars. Major Edwards has instanced the difficulty encountered by the Alison Committee in obtaining information as to the regiments engaged in the greatest of all Marlborough's sieges, that of Lille. In this instance, however, more determined research would have yielded them the information desired; for actually records as to the regiments engaged in that historic siege were available and were quoted only fifteen years later by Sir John Fortescue. To-day the opportunities of research are greatly extended, and much sound historical work has provided a basis for an adequate recognition of those wars of the past.

GAPS AND OMISSIONS.

An examination of the existing roll of battle honours shows that the gaps and omissions can be grouped under certain definite headings. These outstanding defects of the roll as it stands at present may be summarized as follows:—

- (a) The entirely inadequate recognition of Marlborough's campaigns. Only four battle honours represent those ten years of warfare, whereas Wellington's seven years of campaigning in the Peninsula are recorded by twenty-four battle honours.
- (b) The virtually complete omission of certain important series of campaigns overseas, such as the campaigns in Spain and Portugal in Queen Anne's day.
- (c) The haphazard manner in which some battles of the earlier campaigns, down to the Peninsular War, have been selected for commemoration whilst others in the same series of operations, equally meritorious, have been omitted; thus in the Seven Years War "Minden" has been singled out, Corbach and Vellinghausen are not recorded; in the Peninsula, "Sahagun" is a prized honour of the 15th Hussars,

but the cavalry regiments which took part in the more important actions of Usagre and Villa Garcia have no record of them on their appointments.

- (d) The omission of "campaign" honours for nearly all wars before 1800. Thus, for example, as no general honour was given for the conquest of Canada (1755-60) only those regiments which were actually engaged at Louisbourg (1758) or at Quebec (1759) have any battle honour to show for those hard campaigns.
- (e) The lack of recognition for the services of many regiments on board the Fleet. For instance, there is no record of the great naval battles of the Dutch Wars (1664-73) in which the Foot Guards fought with great gallantry and heavy loss.
- (f) The omission of several expeditions overseas, some in conjunction with the Navy, others leading to the addition of notable possessions to the Empire, such as, for instance, the arduous campaigns in Ceylon. Examples of notable "combined operations" as yet unrecorded are Belleisle, 1761, and Corsica, 1794.

The six headings given above cover the principal defects of the roll of battle honours as it stands at present; but when the existing list is considered in comparison with the general history of the Army, attention is drawn inevitably to other omissions which have resulted from certain principles adopted by the authorities of former days:—

- (g) With some few exceptions, before 1914 there was a ban on any commemoration of defeats, even when these were marked by exceptional bravery of the troops concerned. Due to this, our Colours show no record of some of the most heroic deeds in the history of the Army; for example, the gallantry of the Black Watch at Fontenoy or the splendid stand of the Royal Berkshire at Maiwand.
- (h) Again, despite numerous exceptions, there has been a rule against commemorating services by small detachments, so that at present there is no accepted method of commemorating on the Colours such deeds as those of the South Wales Borderers at Rorke's Drift or the remarkable exploit of the Light Companies at Paoli, where the D.C.L.I. gained their red feather.
- (i) In the case of the four old regiments which served in other armies abroad before King Charles II called them home, there

is as yet no mention on the Colours of those more ancient services; for example, the Royal Scots have nothing to show that they represent the Scottish regiments which fought in the Thirty Years War under Gustavus Adolphus, nor from the Colours of the Fifth Fusiliers could it at present be learned that in 1678 they shared in the Relief of Mons.

- (j) It must also be noted that, with good reason, there has in the past been a ban on any commemoration of civil wars.

MARLBOROUGH'S CAMPAIGNS.

To explain in greater detail the headings given above, we may begin with that which we have ranked first on the list, the question of Marlborough's campaigns. These campaigns, in which the British Army first firmly established its reputation for hard fighting and efficiency, were marked by two characteristics: pitched battles in the open field were few and far between; on the other hand, sieges were frequent and were the most usual form of operation. This was due partly to the stage which the art of war had reached at that time, partly, in Flanders and the Netherlands at any rate, to the nature of the country; but as a result Marlborough's campaigns included but a limited number of major engagements in the open field, four of which form at present the sole record of these ten years of war on the Colours of British regiments. A fifth great battle, the storming of the entrenched camp on the Schellenberg near Donauwerth, six weeks before Blenheim, is at present omitted, but should certainly be put on a level with these four, both for its results and as a brilliant feat of arms. The Bavarian position was extremely strong, the defence stubborn and protracted, and the attackers' losses testify to the difficulty of their task and to the courage with which they returned again and again to the attack. That the regiments concerned were soon afterwards to win an even more important victory at Blenheim is no argument for omitting the Schellenberg. In the Crimean War, regiments were not refused "Inkerman" because two months earlier they had stormed the heights of the Alma; nor, in the Sikh Wars, was "Moodkee" denied because only three days later the same regiments gained a more conclusive victory at Ferozeshah.

Besides the Schellenberg, two other actions in the open field during Marlborough's campaigns deserve individual recognition: the great cavalry fight at Elixem after the forcing of the French lines near Tirlémont in July, 1705, and General Webb's brilliant success at Wynendaele in September, 1708. The former can be classed among the

most important actions of British cavalry, both as regards the strategical importance of the success, the number of regiments engaged, the fierceness of the fighting and the completeness of the victory. The Duke of Marlborough himself led his squadrons in the charge, and thought so highly of this victory as to have it represented in the tapestries at Blenheim Palace. The case for Wynendaele is equally strong, both for its strategic importance and its tactical merit; indeed, its claims were realized by the Alison Committee, which however failed to find evidence as to the units there engaged. Research has since established the presence of the Royal Scots certainly, and probably of the Cameronians as well. Even if no other British regiments can be identified as having been present, these two units fully deserve the honour for an action as brilliant as any in our history.

Nevertheless, Marlborough's campaigns cannot be adequately represented in the roll of battle-honours unless recognition is given to the numerous sieges which he and his indomitable battalions carried to a successful conclusion. Wellington's three great sieges—those of Badajoz, Ciudad Rodrigo and San Sebastian—have been rewarded with battle-honours; there is no good reason why equal recognition should not be given to Marlborough's sieges of Lille, of Tournai, of Menin, of Liège, and of the several other fortresses which during those ten years of warfare were sapped, mined and stormed by the British troops. The fighting during those sieges was desperate, the losses of the units engaged were in many cases much heavier than in battles in the open field; thus the five British battalions employed against Bouchain in 1711 had over 1,100 casualties, five times the total British loss at Oudenarde; Lille cost the Bedfordshire, the Royal Irish, the Scots and Welch Fusiliers and the South Wales Borderers together 1,550 killed and wounded; Tournai, against which nine British regiments were employed, was a specially murderous siege, with much mining and underground fighting; whilst Douai in 1710 cost the British Army 570 killed and 1,337 wounded, practically equivalent to the total British loss (575 killed and 1,281 wounded) at Malplaquet. Contemporary accounts of these sieges leave no doubt as to the severity of the fighting and the great exertions required from the troops. Often up to their knees in water in their trenches, faced by the "hellish inventions" at the disposal of the besieged—"bombs, boiling pitch, tar, oil, brimstone with much like combustibles," as a private in the Foot Guards put it—"liable to be blown up by mines or killed both with small and cannon shot at the very bottom of the trench" owing to effective flanking and enfilade fire, the besiegers of Menin, Mons and Béthune suffered as much as those who took Badajoz, Ciudad Rodrigo and San

Sebastian, and are as much entitled to have their losses, exertions and successes recognized.¹

Even if all these sieges were rewarded, as well as the three major actions in the field noted above, in addition to the four battles which have already been recognized, the resulting total of some 20 battle honours would not be in any way too high a recognition of Marlborough's Campaigns; for these campaigns represent the most considerable military achievement of this country before the Peninsular War; with which, indeed, they can stand comparison, either as regards the strategic issues at stake, the size of the armies, the heaviness of the loss, or the successes gained. There is no good reason why Marlborough's campaigns should not have recognition equivalent to those of Wellington: the present meagre allowance of but four battle-honours is in no way sufficient.

MISSING CAMPAIGNS.

If the main campaigns of the Spanish Succession War are thus inadequately represented on our Colours, even less recognition has been given to the subsidiary campaigns in Spain and Portugal, by which the Allies made their direct attempt to establish the Hapsburg candidate to the Spanish inheritance on the throne at Madrid. In scale these campaigns fully deserve commemoration,² nor were they barren in achievements. Far from it; Peterborough's extraordinary capture of Barcelona (1705) and his exploits in over-running Valencia with a mere handful of men and "capturing walled towns with dragoons" made a profound impression on friend and foe. The gallant defence of Barcelona in 1706 was hardly less notable than the solitary incident in these campaigns

¹ It is true that there is difficulty in ascertaining which British regiments were those engaged in certain of these sieges. The despatches give insufficient details as to the individual units, and the information from other authorities is at present incomplete. It is quite possible, however, that wider research will enable the gaps in our present knowledge to be filled, and in the meantime there is definite information to some extent. Satisfactory evidence is available as to the regiments engaged at the sieges of Lille, Menin, Tournai and Douai, whilst there is partial evidence as to the units at Venloo, Liège, Ostend, Mons, Aire and Bouchain. The other four sieges in which British units are known to have been engaged, those of Ghent, Béthune, St. Venant and Le Quesnoy, are as yet obscure, but that seems no good reason why due recognition should not be given in the other instances to those units whose presence is proved.

An article giving in detail the information at present available as to these sieges will be published in the *Journal of Army Historical Research*.

² In the aggregate the British forces employed in these campaigns were as large as or larger than those under Marlborough's immediate command. Twenty-nine of our existing regiments of the Line, five existing cavalry regiments, and detachments from the three old regiments of Foot Guards served in Spain or Portugal, along with three cavalry and twenty infantry regiments disbanded in 1713.

which has been honoured, the capture and defence of Gibraltar in the winter of 1704-5. Stanhope's successful advance to Madrid in 1710 included a really substantial victory at Saragossa in which the Queen's Bays, the Royal Dragoons, the 8th Hussars, the Scots Guards, the Royal Warwickshire and the Duke of Wellington's were all present with several regiments since disbanded; and shortly before that he had routed a superior force of Spanish cavalry at Almenara, in which action he is said to have himself slain the opposing commander in single combat. Almenara and Saragossa indeed fully balanced in their own way the memory of that one battle in these campaigns with which people at present seem to be familiar, Almanza; in which the French under the Duke of Berwick beat an allied army, partly British, commanded by the Huguenot refugee, Galway. The fact that this battle ended in defeat is no reason for refusing reward to other battles in those campaigns which were indisputable victories; for comparison, in the war of 1743-8 our regiments have not been refused "Dettingen" because subsequently we lost a battle at Fontenoy.

Mention of Fontenoy leads us to a second series of campaigns at present entirely omitted, those in the Low Countries during the war of the Austrian Succession. True we have "Dettingen" for King George's opening campaign in Germany (1743); but from the time that the operations were transferred to Flanders, from 1744 to 1748 our regiments have nothing to show, despite much hard fighting, many gallant deeds, and heavy loss. The three principal battles—Fontenoy, Roucoux and Lauffeldt—were none of them successful, but in all three the British troops covered themselves with glory. The complete lack of any commemoration of these operations is a definite gap in the record of the Colours.

A third series of operations as yet unrepresented by battle honours are those of the American War, 1775-82; and here again the omission is most unjust to the regiments concerned. The outcome of that struggle was unsuccessful, but it was not more disastrous than several other campaigns for which battle honours have been awarded: for example, the lamentable expedition to South America in 1807, which ended in total failure at Buenos Ayres, but which has given "Monte Video" to the regiments which stormed that town; or the Duke of York's unfortunate efforts to stem the tide of the French Revolution in Flanders during 1793-5, which cost the greater part of his army, but are commemorated by seven battle honours. Even if in the end we failed to reduce the revolting Colonies to submission, this was no fault of the British soldiers, who in the actual battles were far more often successful than defeated. Out of the eight major engagements of these campaigns

six were British victories, and these for the most part were highly creditable successes won against considerable odds. Even our two principal defeats were in no way discreditable. Of Saratoga, Sir John Fortescue has well said that "no more honourable attempt was ever made by British troops to achieve the impossible"; and at Yorktown the reason for the disaster was not military but naval: our temporary loss of command of the sea.

This American war has been but little studied in this country, for it has something of the flavour of a civil war and it ended in our accepting failure; but the record of the outnumbered British regiments who fought in it is one of which they may well be proud. Even the opening battle of the struggle, Bunker's Hill, highly creditable as it was to the raw American troops who defended their entrenchments so stubbornly, was even more creditable to the British regiments who, though twice beaten back, came again and stormed these entrenchments practically without help of artillery. If Gage handled his troops unskilfully, their courage and resolution were all the more commendable. The two chief actions in the South in 1780-81, Camden and Guildford, were British victories against substantial odds; at Savannah in 1778 a small British garrison beat off a much superior American force backed up by all the men the French fleet under d'Estaing could land; whilst at Charleston in 1780 the American garrison which surrendered to the British was far larger than either of the British forces captured at Saratoga and at Yorktown. The Brandywine, Germantown and Monmouth were fights as hard and creditable as any now on the Colours; and mention must also be made of two minor actions of exceptional merit—the heroic fight at Princeton, where the 17th (Leicestershire), isolated and surrounded, fought their way out through the press of their enemies and carried their Colours to safety; and the exploit of the small force which surprised Wayne's camp at Paoli, gaining thereby one of the most interesting dress distinctions of the Army, the Red Feather still worn by the D.C.L.I.

There is only one reason against commemorating on the Colours our successes in these American campaigns, and that is that they partake too nearly of the nature of a civil war. Against this, however, it must be said that this has not deterred the grant of battle-honours for the subsequent American War of 1812-14 ("Detroit," "Miami," "Bladenburg," etc.), that battle-honours are borne for wars against those who are now our fellow-subjects in the Empire (such as the South African War and the Indian Mutiny), and that the Americans themselves have no such feeling; for they have recently named two of the principal ships in their Navy "Lexington" and "Saratoga." We need not be

afraid, therefore, that a mention of successes equally well earned on our side should offend their susceptibilities.

SOME INCONSISTENCIES.

Besides these three wars which so far have been entirely omitted, several others of the earlier campaigns are sadly under-represented; for example, the four years (1758-62) of hard fighting in Western Germany during the Seven Years' War. Out of half-a-dozen important battles during these operations, battle-honours have been granted only for "Minden" (to six Foot regiments) and "Warburg" (to the Cavalry alone), apart from two honours, "Emsdorff" and "Wilhelmstahl," given only to individual units. Yet Corbach, Vellinghausen and Amöneburg ought equally to be honoured, whilst Warburg and Wilhelmstahl should in justice be extended to other units besides those who bear them at present.

In other past wars there has been similar inequity in the selection of engagements for commemoration. Even in the Peninsula there are some remarkable inconsistencies in this regard. At least one considerable engagement, Murray's defeat of Suchet at Castalla in 1813, has been quite unaccountably omitted, whilst the cavalry actions of Usagre (1811) and Villa Garcia (1812) were both greater in scale and more important in effect than the very creditable (but proportionately very small) triumph of the 15th Hussars at Sahagun. Again, it is indeed strange that no battle honours have as yet been given for two of the major operations of the closing stages of that war—the repulse of Soult's attempt to relieve San Sebastian (which may be called either Lesaca or San Marcial) and Wellington's subsequent advance across the Bidassoa. The latter, as the first occasion since Napoleon's elevation to Imperial rank on which an invader had set foot on French soil, certainly demands commemoration. But perhaps the one gap in the Peninsular record which an impartial observer would most rejoice to see filled is that made by the present omission of El Bodon. That engagement, minor in scale it is true, in which two splendid battalions, the Fifth Fusiliers and the 77th (Middlesex), beat off an overwhelming hostile force of cavalry, whilst the 11th Hussars made charge after charge against many times their numbers, is perhaps as fine an example of all the soldierly virtues as any now on the Colours; it has been celebrated by the most picturesque of British military historians in a passage which must always remain an inspiration to the units engaged; and the fact that this honour has not as yet been granted, although others no larger in scale, such as Almaraz, have been allowed, is a striking instance of the present inconsistency of reward.

It is the same in the earlier wars. In King William's war in Flanders, 1689-97, one solitary achievement, the capture of Namur (1695) has alone been selected for recognition; but there were other episodes which deserve to be remembered, and not least is honour due to the very first battle of the British Army on the Continent of Europe, at Walcourt on 17th July, 1689. Here the British contingent, not large numerically but of sterling quality, soon recognized by the Allied commander, bore the brunt of the first French onslaught and was highly distinguished in the counter-attack which forced the beaten enemy from the field; it is to be noted that amongst the cavalry which made the decisive charge were the King of England's Life Guards, that the unit which was especially distinguished by its stout resistance to overwhelming odds was later the 16th (Bedfordshire), and that the British commander who here laid the foundations of his fame was subsequently to be known as John, Duke of Marlborough.

GENERAL CAMPAIGN HONOURS.

Such obvious omissions in the list of battles should be fairly easy to rectify. There is, however, another aspect in which the record on the Colours of the earlier wars does not at present bear fair comparison with that of later campaigns. Since Peninsular days it has been customary to grant for each campaign a general honour, such as "Punjaub," "Afghanistan, 1878-80," "South Africa, 1899-1902," to record the campaign as a whole, to cover such minor engagements as may individually not merit separate mention, and to reward those units which may have missed the greater engagements. This obvious measure of justice has not, however, as yet been applied generally to the earlier wars. For example, more than twenty regiments served in the arduous campaigns in North America, 1755-60, which ended in the conquest of Canada. Of these, thirteen were present at Louisburg, seven of which were afterwards at Quebec. The other units, such as those who served with Amherst in 1759 and 1760, have nothing to show for their contribution in the gaining of the great Dominion, a contribution which, if less dramatic than Wolfe's victory at Quebec, was equally substantial. A general "campaign" honour of "Canada" or "North America, 1755-60," is the only way in which this injustice can be rectified.

Similar grants of "campaign" honours are needed for the other earlier wars, and such grants would do much to obviate the inequity by which many regiments which did hard fighting and suffered heavy loss in Flanders under King William or the Duke of Cumberland, in Germany under Ferdinand of Brunswick, in Spain under Peterborough, in the Netherlands under the Duke of York, can at present show no record of these services.

"Campaign" honours alone, however, are not enough; for these general records of operations can have no such definite appeal as the name of an individual gallant deed. Thus one of the few "campaign" honours at present on the Colours for wars of the XVIIIth century is "Mysore," granted to commemorate the operations against Tippoo Sahib of 1789-92. It needs only the briefest comparison with subsequent wars in India to see how inadequate is this one word as record of that hard struggle, which lasted for two-and-a-half years and included the storming of several fiercely defended fortresses, such as Bangalore and Nundy Droog, besides the final great and critical battle before Seringapatam, which forced the beaten tyrant to sue for peace. This struggle may fairly be compared with the Sikh wars of 1845-49 which, totalling together only ten months of active operations, have been rewarded with seven battle honours for individual engagements besides the covering honour "Punjaub." Equal recognition is due to the earlier war, and its battles should in fairness be allowed separate honours,¹ so that "Seringapatam, 1792," may be set beside its later namesake already granted as a battle honour, the final storming of Seringapatam in 1799.

SERVICES IN THE FLEET.

Comparable to the other omissions we have noted, and explicable only by the haphazard way in which the present list has been evolved, is the situation with regard to the recognition of the services of regiments on board the Fleet. At present only five regiments bear distinctions for service at sea. Three of these bear on their Colours the device of a Naval Crown with the date of a given battle, and of these three one, the Welch Regiment, has in addition the name of a naval victory "St. Vincent" among its other battle honours. Two others, the Royal Berkshire and the Rifle Brigade, bear the battle honour "Copenhagen" without any distinguishing device.

The explanation here is that "Copenhagen" and "St. Vincent" were awarded as ordinary battle-honours before the Naval Crown had been devised; and that the purpose of this later device was to embellish the plain date which otherwise alone could record the "Glorious First of June" (1794) and "Rodney's Victory" (1782), since these two latter engagements were not known by any more definite name. But by the mere fact of the distinctive device those regiments which have been

¹ Actually "Nundy Droog" was awarded as a battle honour by the Hon. East India Company to their Madras European Regiment, which afterwards became the 1st Royal Dublin Fusiliers; but the two British regiments which led the assault (36th and 71st) have not been awarded this distinction—a typical instance of the unsystematic procedure in the past.

given the Naval Crown appear to the uninitiated to be thus marked out as especially connected with the Fleet; and this is, not without reason, held as a grievance by others. Not only the Royal Berkshire and the Rifle Brigade but also several other regiments have served with distinction on board ship in naval engagements. Notably in the earliest days of our Army's history the Foot Guards fought with great distinction in the naval battles of Charles II's two Dutch wars; and later three units still existing (the 1st East Lancashire, 1st East Surrey and 1st D.C.L.I.) served throughout Queen Anne's wars as regiments of Marines; yet these have as yet no symbol to record those eleven years of hard service. Perhaps the grandest battle honour of all, if it can be established, would be "Armada" for the H.A.C., since there is reason to believe that detachments of that ancient corps served in the ships contributed by London to the fleet which saved our shores from invasion in 1588. This, however, has yet to be proved; but without doubt there were regiments on board ship, acting as Marines, under Rooke at Vigo Bay (1702), in the battle of Cape Passaro in 1718, with Hughes against Suffren in the Indian Ocean, with Byron and Hood in the West Indies in 1778-81, and off Toulon in 1794; whilst one regiment, the 14th (West Yorkshire) served as Marines in the fleet which Rodney led in 1780 to the relief of Gibraltar. All these deserve fitting commemoration of their service, if the Army's co-operation with the Navy is to be fairly recorded.

If it is unfair that the part played by the West Yorkshire in the relief of Gibraltar has been omitted, whilst the fighting of the defending battalions has been honoured, it is still more curious that one out of the three sieges of that fortress has been altogether ignored. The capture of Gibraltar together with the first siege, in 1704-5, is now borne as a battle honour by the regiments concerned, and the badge of the Castle and Key for the third siege of 1778-83 is one of the oldest distinctions in the Army; but up to the present no recognition has been given to the regiments who during the second siege in 1727 held fast that fortress despite considerable privation and loss: a defence which on every ground is worthy of commemoration.

In the same way the present record on the Colours of the many expeditions carried out in conjunction with the Navy, and of our minor Colonial wars, is at present partial and incomplete. The capture of Belleisle in 1761 was an enterprise involving a large fleet and fourteen battalions; and the latter suffered heavy casualties before the island fortress was compelled to surrender—an event which in its own day was ranked with the proud victories of Minden and Quebec. In 1794 a small but ably-led British force, acting in close co-operation with the

Navy, won Corsica from the French to serve as a base for our blockade of Toulon. Neither of these successes has as yet been commemorated on the Colours, nor has recognition been given to the regiments who took part in the defence of Sicily from 1806 to 1814 or to those who in the latter year captured Genoa from the French. Another small campaign overseas which might well be recorded is that on the frontiers of Portugal in 1762 when, at Valencia de Alcantara, the present 16th Lancers received their baptism of fire. As regards the Colonial wars, the gaps in the record are equally notable. There is at present nothing to recall the trying campaigns in Ceylon, the bitter fighting in the re-conquest of Grenada from the French-led negro insurgents (1795-6), the simultaneous Maroon War in Jamaica, the earlier "small war" (1772) against the Caribs of St. Vincent, the first capture of the Cape of Good Hope (1796), the acquisition of Mauritius, the Nepal War of 1814, and several other such expeditions and campaigns, minor in scale but not without their importance in the history of the Empire. Amongst the lesser campaigns of the XIXth century as yet unrecorded, the frontier operations of 1863 by the Umbeyla Pass, in which the Highland Light Infantry suffered serious loss, are an unaccountable omission in the present list.

GALLANTRY IN DEFEATS.

Such honours for small campaigns, however, are not as a rule the distinctions which mean most to the regiments concerned. Although it is desirable that the record of a regiment's services should be complete and should be fair in comparison with that of other Corps, it is not on a mere catalogue of successes that regimental tradition depends. That tradition is focussed in most cases on but one or two episodes in the regiment's history; and in some cases the strongest source of inspiration may not be of a victory but the memory of exceptional gallantry in defeat. Thus to the Royal Berkshire the memory which can never fade is that of the last stand at Maiwand, where, with the rest of the British force in rout behind them and the overwhelming army of Afghans on every side, the remnant of the battalion fought on until only eleven were left. "These eleven charged out of the garden and . . . such was the nature of their charge and the grandeur of their bearing that although the whole of the Ghazis were assembled round them, not one dared approach to cut them down. Thus standing in the open, back to back, firing steadily and truly, every shot telling, surrounded by thousands, these eleven officers and men died; and it was not until the last man had been shot down that the Ghazis dared advance upon them . . . history does not afford any grander or finer

instance of gallantry or devotion to Queen and country than that displayed by the 66th Regiment on the 27th July, 1880."¹

There are other comparable episodes. The superb fight of the British regiments at Fontenoy, of which Sir John Fortescue has written that "as an example of the prowess of British infantry, Fontenoy stands almost without a parallel in its history"; the desperate valour of the Black Watch at Ticonderoga; the stubborn resistance made by the defending battalions at Landen and later at Lauffeldt; the devotion of the cavalry in that latter battle, led by the gallant Ligonier in a last charge fully as memorable as that of Balaclava to cover the army's retreat; in any adequate summary of the Army's history these must be included. With these must be ranked such deeds as the heroic defence of Minorca in 1781-2, when four weak battalions, including the 51st and the 61st of the Line,² held that fortress against 16,000 enemies for month after month until so reduced that at last "only six hundred wasted, decrepit figures" remained at the final surrender; "and so pitiful was the sight as they staggered between the ranks of the besieger's army, that the hardest veterans of France and Spain could not conceal their compassion."³

Equally noble was the previous defence of that same fortress by Blakeney in 1756; and with these must be ranked the defence of Guadeloupe in the spring of 1794, of which Sir John Fortescue has well written that "though the tale of their heroism must remain for ever but half told, the records of the British Army contain no grander example of heroism than this of the dying garrison of the camp at Berville." All the five regiments which took part in that defence have good reason to remember it with pride; but to one at least it should recall a special instance of devotion; for when surrender at last was inevitable, and the remnant—125 only remaining out of over 3,000—had no course but to capitulate, a small party of the 39th (Dorsetshire) made their way out and down to the shore with the Colours of their regiment, and, putting to sea in an open boat at mercy of wind and wave, came at last to safety in the islands of Les Saintes.

Before 1914 such gallant memories were debarred from commemoration on the Colours by a definite rule against the inclusion of defeats;⁴

¹ Official Despatches.

² Now the 1st King's Own Yorkshire Light Infantry and the 2nd Gloucestershire. The other two units were Hanoverian.

³ Fortescue, III, 418.

⁴ To which there had been some exceptions; for example, "Mangalore"; whilst "Balaclava" was a very doubtful "victory"—the Russians at any rate considered it a success for themselves. The Britannia badge on the Colours of the Norfolks is said to commemorate their gallantry at Almanza, whilst a laurel wreath on the Colours of the 34th (Border) is believed to be in memory of Fontenoy.

but since the last War this rule has been relaxed. The committee which drew up the list of battle honours for the war of 1914-18 specially included the gallant but unsuccessful Defence of Kut, as well as definite defeats in the field such as Suvla, and other actions which, as in the instance of Le Cateau, can certainly not be ranked as victories. Their object was to commemorate the gallantry of the troops who fought, rather than to draw a line between victory and defeat; and that this met with general approval is shown by the fact that all the three names mentioned above have been selected by individual regiments for emblazonment on their King's Colours. In view of this, it is perhaps reasonable to hope that an equal latitude may be permitted to the wars of the past; and that those regiments whose cherished traditions centre round some such glorious but unsuccessful deed of valour may be allowed to record it in some fashion on their Colours.

EXPLOITS OF DETACHMENTS.

Some other notable gaps in the history of the Army as recorded on the Colours arise from the rule in force before the last War that an honour could not be awarded unless "Headquarters and 50 per cent." of a unit had been present. This rule had been honoured in the breach almost as much as in the observance¹, but in the later XIXth century it resulted in the omission of some episodes of great sentimental value. The outstanding instance is, of course, Rorke's Drift. Here a small detachment, a mere 80 men, of the South Wales Borderers made a defence of their small fortified post against an overwhelming horde of Zulus with results which were definitely of strategic importance, in that their stand prevented the savage host from over-running the frontier districts of Natal. The impression made by that gallant episode was so strong that even now the memory of it has not been obliterated by the far greater events of more recent times.

A comparable instance is the affair of Paoli in September, 1777, when a composite battalion of light companies, accompanied by the Black Watch and the 44th (Essex), fell upon a superior force of Americans by night with the bayonet and utterly routed them. After that action the light companies concerned adopted a distinctive Red Feather in their caps, it is said as a mark of defiance; and this cherished distinction,

¹ Instances are—the composite units of Foot Guards and of Household Cavalry in several campaigns, Wellington's "Provisional Battalions" of amalgamated regiments in the Peninsula, the detachments of the 35th and 61st at Maida, the solitary troop of the 11th Hussars in Egypt, 1801, and the Naval Crown granted for battles on board the Fleet. In all these cases battle honours had been allowed for the services of detachments; and the Volunteer units in 1900-02 were an even more curious instance.

preserved ever since by the D.C.L.I., is perhaps one of the most interesting dress distinctions in the Army—a striking example of the fact that the tradition of gallant deeds does not depend merely upon the number engaged.¹

The absence of such outstanding exploits by small detachments is a definite defect in the record borne in the Colours, if this record is considered a summary of the Army's history. Such instances are, however, not numerous; and their case could be met without much difficulty by allowing them as special exceptions to the general rule of "Head-quarters and 50 per cent."; just as exceptions have been made, doubtless for good reasons, in the past. Even if such distinctions could not be included in the general roll of battle honours, it should not be impossible to devise some special symbol, on the analogy of the Naval Crown already granted for the services of detachments on board the Fleet, to enable such historic episodes as Rorke's Drift to be given due commemoration on the Colours.

Another notable omission affects only four of the very oldest regiments of the Army—the Royal Scots, the Buffs, the Fifth Fusiliers and the Royal Warwickshire. These old regiments served in other armies as soldiers of fortune before they came back to England under King Charles II; the Scots in the service of Denmark, Sweden and France, the other three in Dutch pay. In the course of that service abroad they or the older corps they absorbed took part in many famous events. The Green or Scots Brigade of Gustavus Adolphus fought at most of the great battles of the Thirty Years War, including his great victory of Leipzig (1631), before their remnants passed to the French service in 1635 and were absorbed into the Regiment of Hepburn. The ancestors of the Buffs took part in many battles during the Dutch struggle for independence, and notably the great fight on Nieuport Sands in 1601; the Fifth and their compeers, had an equally eventful if briefer career in the Dutch service, including Maestricht in 1676 and, two years later, the Relief of Mons. Yet there is nothing on the Colours of any of these units to recall this stirring prelude to their history under the British flag; and the roll of battle honours is the poorer thereby.²

¹ During the present year a second regiment whose light company took part in the attack at Paoli has been officially allowed a special dress-distinction to commemorate that exploit: the Royal Berkshire being now authorised to wear for this purpose a patch of red cloth behind their cap-badge and on the foreign-service helmet.

² Even if the idea of blending such foreign battles in the same list as our own must be discountenanced, it would seem possible to evolve some device, such as the arms of the country concerned, with the appropriate dates, to recall that eventful past.

Last and least important of the gaps in the present list, the historian must note the absence of mention of the few but important civil wars in the British Isles. It is unlikely that any of our regiments would desire to commemorate on their Colours the necessary but melancholy business of Sedgemoor, Sheriffmuir and Culloden. The Boyne and Aughrim are perhaps different, since here the opposing army was partly French. These however involve questions of tact and sentiment which in this survey can only be indicated, not discussed.

SUMMARY.

These, then, are the principal gaps in the record of the Army's history as it stands at present. It should not be difficult to make good the omissions. What would this entail? Taking the four periods into which at the beginning of our summary we have divided the whole era from the Restoration to 1914, a fair redress of the existing deficiencies would give about 30 additional battle honours to the period up to the death of Queen Anne, another 30 approximately for the rest of the XVIIIth century down to the French Revolution, perhaps 20 to make good the defects still existing in the record of the wars of that Revolution and of the Empire and about another 10 to reward such deeds as still await commemoration between 1815 and the last Great War; a total of about 90 additional battle honours, bringing the present 210 up to a final figure of about 300.

Analysed as to the effect of these possible awards so far as individual regiments are concerned, this would mean that the older regiments should receive on the average about a dozen additional battle honours, varying in individual cases down to about half-a-dozen in the younger Corps. A few exceptional units have deserved more than a dozen additional distinctions; but even in their case the colours need not be inconveniently crowded; for only in a very few instances would the total of the battle honours of any one regiment exceed the number now already displayed on the Colours of the Gloucestershire Regiment, 34. This is due to the fact that the Colours to which most honours would be added are those of the older regiments—which, through the inequity of the present faulty representation of our history, have room to spare.

To sum up; at present the record of our military history provided by the battle-honours of the Colours is incomplete and unsystematic, and does not fully carry out the purpose for which battle honours were intended of commemorating the most inspiring episodes in the history of the regiments concerned. The present opportunity gives the chance of revising the whole list on a definite system, so as to make the battle honours an adequate representation of the deeds of our regiments. As

a parallel, in another line of history, may be quoted the "Great Reform Bill" a century ago. This did not lower the franchise, for the line it drew would have excluded some of those already possessed of the vote; what it did was that it swept away invidious and unfair anomalies, established an approximately uniform qualification, brought in many people who were illogically excluded, and put the whole franchise on a systematic basis. It is to be hoped that the welcome re-opening of the "Battle Honours" question will lead to a similar result; giving system where there is none, filling the existing gaps in the record, and making the roll of battle honours a fair summary of the achievements of our Army.

THE SUDAN OF TO-DAY

By COLONEL B. T. WILSON, D.S.O., R.E.

On Wednesday, 7th February, 1934, at 3 p.m.

MAJOR-GENERAL H. J. HUDDLESTON, C.B., C.M.G., D.S.O., M.C.,
in the Chair.

THE CHAIRMAN, in introducing the Lecturer, stated that he had served as Chief Staff Officer of the Sudan Defence Force during the past four years.

LECTURE.

THE decisive victory of British, Egyptian and Sudanese troops at Omdurman in 1898 swept away dramatically and for ever the bloody rule of the Khalifa. The Sudan, two-thirds the size of China, poor, ravaged by war and inhabited by many different barbarous tribes, lay reconquered but in ruin. For nearly fifteen years it had been a land of tragedy and disaster. General Gordon, in his bitter fashion, had declared that "the Sudan is a useless possession; it always was and it always will be." Lord Cromer, too, had few illusions about the Sudan, but he considered the effective control of the Nile from the great lakes to the sea to be essential to the existence of Egypt. His recipes for its government were few and simple. He relied on light taxation, equal justice for all, improved transport, the spread of Nile irrigation, and on *time*—especially on time. Thirty-five years have now elapsed since the battle of Omdurman. We have passed from the prosperity of the Victorian era, through the horrors of a world war, to a new age of competitive industrialism, which is almost as bad. There has been ample scope for all the influences of time, healing or otherwise, to materialize and their effects can now be estimated.

In 1899 the northern boundary of the Sudan was fixed on Lat. 22° which runs just North of Wadi Halfa. The southern boundary was unspecified. The Sudan was to end somewhere in Equatoria, as events might turn out.

The Sudan falls naturally into two parts, the northern Sudan and the southern Sudan. The dividing line is the line of the rivers Sobat-Bahr Al Arab along about the 9th parallel of Latitude. There are

striking differences of climate and inhabitants in the two portions. The southern Sudan belongs ethnologically to the equatorial Africa of Uganda and Tanganyika. It is comparatively rich in vegetation, forests and mountains. The rainfall is, for the most part, heavy. The natives are pagan blacks of many different tribes and beliefs. They speak no common tongue, and Arabic is as strange to them as English. In the northern Sudan the rainfall diminishes towards the North, and vegetation gradually fades away into the howling deserts of Libya on the West and of Nubia on the East. The people of the North are, with few exceptions, almost all Arabic-speaking Mahommedans with a strong strain of nomad Arab blood, derived from the Arabian tribes which have, from time to time, crossed the Red Sea into Africa.

This diversity of race, climate and creed, combined with the vast extent of the country and its dire poverty, would have presented a most formidable administrative undertaking even under the most favourable conditions. In 1899 the task was infinitely more difficult. The land lay ruined by the cruelties and excesses of a bloodthirsty tyrant. It was isolated from western civilization by burning deserts and unknown wastes. Its population had been reduced by famine and war to less than 2,000,000 souls. Slavery was rampant and trade was dead. It was not a question of turning the Sudan into a second India by some magic wave of the wand of government; the problem was how to carry on at all. The first Governor-General was Lord Kitchener, but that great figure was not fated to develop the country which he had so triumphantly reconquered. He was soon called to Lord Roberts' side in South Africa.

It was Sir Reginald Wingate and his British officers of the Egyptian Army who laid the foundations of the Sudan of to-day. Lord Cromer had been greatly hampered at every turn in his herculean task in Egypt by that premature announcement of evacuation which has been our curse in other countries as well. He determined that no such fate should befall the Sudan. By the Condominium agreement of 1899, which he devised, Egypt and Great Britain became joint rulers of the country without any question of evacuation. Nor did Lord Cromer wish for any of the complications which had followed in the train of the capitulations in Egypt. One judicial system was to suffice for all, and in the actual event the Sudan Code has given unquestioned and universal satisfaction.

Lord Cromer's wisdom is nowhere more strikingly shown than in the broadness of his directions. He left the detail to be filled in on the spot by the soldier-administrators; and they acquitted themselves well. Lord Cromer spoke of them with high praise, and even declared that

he considered it immaterial whether the administrators of the Sudan were civilians or soldiers—both would be equally good. But soldiers are apt to be required for their proper military business, and time was shortly to show that as administrators they become restless and impatient in time of war. A wise decision was made to institute a Political Service, which was recruited by selection from the best undergraduates of the British universities. These young men were introduced at the bottom of the administrative ladder, and, at the present day, after the lapse of years, they have assumed almost entire control of the country.

The Central Government in Khartum is astonishingly like a British Cabinet in miniature, unimpeded by any Parliament. Civil and military command is in the hands of the Governor-General, who issues his edicts by means of Orders in Council, and has very wide powers indeed. But the Sudan is not a British Colony, so that all matters of policy concerning it are dealt with by the Foreign Office, which communicates through the High Commissioner in Egypt with the Governor-General. This arrangement ensures that both partners in the Condominium can give expression to their views.

Egypt is vitally interested in the Sudan and secures full recognition of her interests, not only by close co-operation with the British Government in accordance with the terms of the Condominium, but also by sharing to the extent of £750,000 a year in the cost of the administration.

The country is divided into fourteen Provinces, each under a Governor with a number of District Commissioners, varying from eighteen in Kordofan to two in Halfa.

The contemporary history of the Sudan has been full of incident. As an almost continuous background to the ordinary routine of life, constant small punitive expeditions have been necessary for the preservation of law and order. Then, almost before the new regime was firmly established, the outbreak of the Great War shook the world to its foundations. Happily for the Sudan, Sir Reginald Wingate hung on like a vice to most of his British officers in the Egyptian Army, and on the whole the work of government went on with extraordinary little change, in spite of the cataclysms which were convulsing a large part of Africa in common with the rest of the world.

In 1916, the temptations in favour of intrigue and rebellion against the Government were too much for Ali Dinar, the now almost legendary Sultan of Darfur. An expedition was sent against him, which had to traverse that desperate 400 miles of camel track, now politely known as the Darfur Road; this track spans the barren stretch of country between railhead at El Obeid in Kordofan and Fasher, the capital of Darfur.

When once the force got to grips with Ali Dinar, it made short work of the Sultan's troops, but Ali Dinar himself was not disposed of until some months later, when our present Chairman, then a Major, brought him to bay and to his death after some terrific forced marching with improvised mounted infantry. Aircraft were used for the first time in the Sudan on this expedition, and it is remarkable to relate that some wild tribesman with an old family musket was able to score a direct hit on one of the planes, wounding the pilot's leg. The same feat was achieved in later years by a recalcitrant Nuer, one of those natives who stand on one leg like storks.

In 1924, there happened the most momentous series of events which have been experienced since the reconquest of the Sudan. I refer to the murder of the Sirdar, Sir Lee Stack, in Egypt, and the attempt made by Egyptians to stir up mutiny in the Egyptian Army in the Sudan. The dastardly murder in Cairo and the preliminary plotting in Khartum were well managed, but when it came to the moment for resolute action the Egyptian conspirators lost heart. The presence of British battalions and the absolutely calm handling of the situation by the authorities saved the day. But the consequences of these incidents were far-reaching. The Egyptian troops, literally lock, stock and barrel, were removed from the Sudan, and with them all Egyptian officials known to be disloyal to the Government. Egyptian troops thus severed their long and chequered connection with the Sudan, where for over a century they had suffered and laboured; it seemed tragic, but circumstances made it inevitable.

After the departure of the Egyptian garrison, the country continued prosperously through the boom years until the slump started in 1930. By that time the successful operation of the Gezireh irrigation scheme had made its prosperity largely dependent on the state of the cotton market, and thus outside Sudanese control. The slump, therefore, hit the Sudan very hard indeed, and as a paralysing influence it has been the greatest calamity since the Mahdia.

No account of the development of the country would be complete without a reference to the devolutionary system of government which, as in certain British-African dependencies, is now in process of establishment in the Sudan. Its underlying idea is a study of the native regimes of the past, and to revive them in accordance with present-day requirements. Native chiefs all over the country are being entrusted with the administration of justice in their own courts, as a first step for undertaking full control of their various tribes. The sheikhs and chiefs are responding well to the demands which are being made upon them. It is a long process and British guidance will be necessary for

many years to come. The critical period of the devolutionary system will be those years, now not very far ahead, when many of the native chiefs will be men who have received a government education. Already in the Blue Nile province an old sheikh has handed over his charge to his son who has retired from a government post to take over his inheritance, and is, so far, doing very well.

In the South the process of devolution is being combined with the trial of English, rather than Arabic, as the official language, since Arabic is just as unknown to the blacks of the South and more difficult to learn. Moreover, the Arabic language is so intertwined with the religion and law of the Prophet, that it brings in its train conversion to Islam and an outlook on life fixed more on the glories of the past than on the problems of to-day.

In thirty-five years vast strides have been made in the administration of the Sudan. There now remain but few corners where some sort of Government control does not prevail. This is a very notable accomplishment for less than 200 political officers in a land so huge and barbarous.

The activities of the Government have been exercised in many fields. Taking finance first, as the keystone of good government, it can be said that the country prospered steadily from year to year right up to the disastrous slump of 1930. In spite of the popular view that all soldiers are spendthrifts and not to be trusted with the administration of public funds, they did very well in the early days of Sudan finance under Bernard Pasha, and the revenue climbed steadily. By 1904, it was over £500,000. By 1929, it was £4,800,000, nearly a ten-fold increase in twenty-five years. In 1930 came the crash, and the revenue has fallen since then by over £1,000,000 a year. It is chiefly the drop in values and not the drop in volume of trade which has caused the shrinkage. The world price of cotton, for example, has fallen from over 2s. per lb. in the boom years to round about 8½d. per lb. at the present day. In 1932 it actually cost the Sudan a dead loss of over £500,000 to be a cotton-producing country.

Drastic measures of retrenchment and economy have been necessary to balance the budget; but stability is in sight for 1934. The process of reduction has not been pleasant. "Hell hath no furies like public services during a period of retrenchment." Foreigners rather than native Sudanese have been selected for the axe. Many fine Englishmen have lost their jobs and have been thrown on the world to search for a living during an unexampled period of trade depression. The natives also have suffered very severely, but they have taken their misfortune with great fortitude and characteristic patience. I can sum up the

financial outlook by saying that if, as seems possible, President Roosevelt can raise the world price of cotton, he will be heartily blessed for it in the Sudan.

Although, for the moment, many of the irrigation schemes in the Sudan are costing a good deal more money than they are producing in revenue, there can be no question about the value of the service they are rendering to the Sudanese even in these hard times.

We are apt to forget in these uneasy days of the struggle to live, that the true object of industry should be to make the forces of nature subservient to mankind. Too often at the present time the industry of one nation is deliberately organized to damage that of another, so that mankind suffers hardship in the midst of plenty. Seen in this light, successful irrigation schemes are true steps to world progress. In the end, if civilization is to survive, the follies of quotas, tariffs and currency manipulations will cease, and Sudan irrigation works will not only bring prosperity to the Sudanese but will assist in world prosperity also. Even as it is, thousands of acres of formerly barren cotton soil in the Gezireh are now being cultivated by a growing and contented population. Where there was a wilderness there is now plenty; and the possibilities of yet further Nile irrigation are enormous.

At Gebel Aulia, twenty-five miles South of Khartum, a start is being made this year with the huge dam which is to supply more water for Egypt. The population of Egypt increases every year, and has nowhere to expand except in the Nile valley. More and more land must be perennially irrigated to take up the increase in population. Far-reaching schemes have been studied in detail for years by the Egyptian Irrigation Department at Malakal for increasing the flow of the White Nile, both by raising the height of Lake Albert and by reducing the evaporation losses in the Nile swamps of the Sudd area. Lake Tsana in Abyssinia, the source of the Blue Nile, can also be raised to supply more water for Egypt and the Sudan. Extra water from here would enable Gezireh irrigation to be perennial instead of seasonal as it is at present. This would be a great boon to the inhabitants of the Gezireh, for seasonal irrigation has obvious disadvantages. It is clear that, for the construction of these works, which will eventually become necessities for her existence, Egypt must live in harmony with the Sudan.

It may be remembered that the improvement of transport facilities had been one of Lord Cromer's recipes for the government of the country. The immense improvement in this respect is one of the features of the Sudan to-day. In 1898, the railway ended at Atbara, 220 miles North of Khartum, and about 350 miles from Wadi Halfa. At the present time there are nearly 2,000 miles of railway and 2,326 miles of steamer

services. Port Sudan was built by an ill-starred Royal Engineer officer of genius, and opened in 1911; it is now a magnificent deep-water harbour, handling over 800 ships a year.

The immensely long lift of 500 miles through desert country to Port Sudan is a great obstacle to profitable railway traffic. Some of the existing rail and steamer services barely pay, nor is the construction of more railway communication an economic proposition until trade conditions improve. It is probable that of late years the petrol engine has done most to obliterate distance and to open up the country. The motor car in the form of that early design of vehicle, known as the "T" Ford, made its first appearance in the Sudan during the War and soon proved a success.

There are very few roads, as we understand them in Europe, but there are many thousands of miles of dry-weather tracks. Very few places in the country are now inaccessible by mechanical transport in dry weather. Vast stretches of cotton soil and soft sand are the chief hindrances to all-weather motor traffic. It is extremely probable that soft sand will capitulate, quite soon, to the latest types of "doughnut" and air wheels for lorries, but no kind of special wheel will compete with wet cotton soil. Cotton soil can be burnt into a hard aggregate and treated with special bituminous binders to form a waterproof surface, but the process is much too expensive for the Sudan under present economic conditions. Many places will, therefore, continue to be more or less isolated during the rains.

The burning of cotton soil and its treatment with bitumen has, however, an immediate use for the making of all-weather landing grounds, and two have been so treated in 1933 by Imperial Airways, namely the grounds at Malakal and Juba.

The Royal Air Force, also, has not been idle since it arrived in Khartum in August, 1924. The aircraft of 47 (B) Squadron, R.A.F., have become so useful in the control of the country that it would complicate matters greatly to dispense with them, for there are few spots in the Sudan which are not flown over at least once a year by them. To the native mind, the watchful eye of the Government is very often directed upon them.

The Squadron has also been a most valuable pioneer in the establishment in 1932 of the Imperial Airways route to Capetown. Its pilots gained the first experiences of flying in the Sudan, and they made the original landing grounds. They also took part in pioneer flights through the heart of Africa to Capetown and to the West Coast.

The Sudan is an admirable country for flying. The weather is regular in its disturbances, and the violent storms are very local in their effects. The all-important visibility is usually good, and there are few places where a skilful pilot cannot make a forced landing. In the last five years, the air traffic to and through the country has trebled in volume. Without referring to actual statistics, I believe I am right in saying that over 400 aeroplanes landed at Halfa during last year, compared with 145 in 1929.

During the past four years, the Sudan has been singularly peaceful. This happy state of affairs is in striking contrast to conditions in the old days, when the Egyptian Army garrison was almost continuously engaged in patrols and warlike operations. This peacefulness is mostly due to the extension of the administration to almost every corner of the country, though great assistance is also given to it by the presence of mobile and efficient armed forces.

The natives of the North are fanatical by nature and, being nearly all Mahommedan, are liable to those characteristic sudden outbursts of religious frenzy which may rapidly cause dangerous rebellion, if not at once stamped out. The tribal blacks of the South form a less serious, though possibly more imminent, danger. They are united by no common creed and never combine against the Government, even by sub-tribes. Such races as the Nubas, Nuers, Dinkas and Annuaks, are most likely to give trouble. The garrison of the Sudan is only designed to ensure internal security, including a conceivably possible Mahdist rising starting in French Equatorial Africa.

For the size of the country the garrison is tiny. If serious trouble came from over the frontiers, reinforcements would be required from Imperial sources. The garrison is commanded by the Kaid, and consists of three parts:—

- (1) British troops ;
- (2) The Sudan Defence Force ;
- (3) 47 (B) Squadron, R.A.F.

British troops in the Sudan consist of one complete battalion in Khartum, and one battalion (less one company which is in Cyprus) required for safeguarding the line of communication to Port Sudan. A detachment of the Royal Artillery still garrisons the Fort at Khartum. The purpose of the British troops is to make certain of the seat of government at Khartum and the line to Port Sudan. They are also available for despatch elsewhere if required. The presence of British troops is well known to be one of the best calming influences on this planet.

The Sudan Defence Force was formed by General Huddleston after the Mutiny of 1924 from what remained of the Egyptian army after the Egyptian units had returned to Egypt. The Sudanese battalions of the Egyptian army, originally organized on a regular basis for the reconquest of the Sudan, had done their work well, but for garrison duty, after the reconquest, they had long proved cumbersome and unwieldy. After 1924 they were gradually disbanded. The 9th Sudanese, famous on many fields, was the last battalion to go; it disappeared in 1930.

The Defence Force now consists of irregular mounted infantry, camelry and infantry, organized on a company basis and loosely grouped in five corps in various parts of the country. The whole force is highly mobile, and is provided with engineers, three motor machine-gun batteries, and an admirable mechanical transport organization. There is now a larger proportion of British officers doing duty with the Sudan Defence Force than in the days of the Egyptian army. There is great competition to obtain employment with it, and some of the best young officers of the British Army are gaining experience of Africa as *bimbashis*, just as they did twenty and thirty years ago.

Since retrenchment started in 1929, the cost of the Defence Force has been reduced by nearly £250,000 to £420,000 per annum. It now disposes of about 4,000 rifles and 60 machine guns; these represent an irreducible minimum.

The 47 (B) Squadron, Royal Air Force, is under the operational control of the Kaid. Administratively, it comes under Headquarters, Royal Air Force, Middle East, in Cairo. It can be used either in co-operation with the troops or alone. Experience, as far as the Sudan is concerned, tends to show that air action is more effective and humane in co-operation with troops than when used without support on the ground.

In the event of need, air reinforcements can be flown to Khartum from Ismailia and Heliopolis in 48 hours, or even less if conditions are favourable. These air reinforcements may include "Victoria" troop-carriers, which are useful, either for the transport of troops or for the support of the "Gordon" general purpose aircraft, with which 47 (B) Squadron is equipped. If the Nile valley route was, for any reason, out of action, air reinforcements would proceed down the Red Sea to Port Sudan, and thence over the Red Sea hills to Khartum. The necessary landing grounds on the Red Sea coast are marked out, and are visited from time to time by aircraft.

Generally speaking, the garrison of the Sudan, though very small, is singularly suited to its purpose. British troops make certain of the

centre of government and constitute a valuable and unrivalled reserve, whilst the mobile units of the Sudan Defence Force, assisted by the Royal Air Force, make sure of the vast hinterland beyond Khartum. The Sudan Defence Force and British troops are constantly exercised in co-operation with aircraft, and very notable progress has been made in co-ordinating air and ground action. Most valuable combined reconnaissances have also been made in many unknown parts of the land, notably in Sudanese Libya and in the Kaiserin Mountains close by Lake Rudolph in the far south-eastern corner of Mongalla.

Sudan Defence Force motor machine-gun batteries, accompanied by planes of 47 (B) Squadron, R.A.F., have visited the little-known oases of Laqiya and Merga in 1930, and Bir Natrum and Merga in 1931. These journeys are of interest, at the moment, as the Italians from Italian Tripoli are laying claim, not only to Jebel Owenat in the extreme North of the Sudan, but also to Merga, which is 200 miles inside the northern boundary. This rather surprising claim is the subject of diplomatic discussions at the present time, and the result is not yet known. It is believed that the Italians are desirous of obtaining these oases for the establishment of landing grounds to permit of their aircraft proceeding without landing in the Sudan to Eritrea, their colony on the Red Sea. Marshal Balbo, who conducted the recent Italian Transatlantic flight, is now Governor of Tripoli, and it is probably to his influence that this forward Italian policy is due.

In so brief a space it is only possible to mention the more salient aspects of the Sudan of to-day, and consequently I have with great regret omitted all reference to many outstanding achievements. Health, Education, Public Works, Posts and Telegraphs, Survey and Agriculture, have all been admirably established. I trust that what I have said has been sufficient to convey an impression of the great work which has been, and is being, done.

Whatever else the makers of the modern Sudan may have lacked, they have not been wanting in boldness and courage. From the first they have aimed at big results, undeterred by a World War and its aftermath of confusion. In ordinary times those big results would have been attained easily and without any setbacks. Even as it is, the Sudan begins to emerge from her difficulties, armed with new knowledge acquired in adversity. The present task is, obviously, to cut back and consolidate an administrative lay-out which has been perhaps, overlarge for a country which is essentially poor.

In 1899 the future of the Sudan was a secret of the Sphinx, but it is a secret no longer. The Sudan stands revealed, in 1934, as a young country making good in modern Africa amidst great difficulties not of

her own making. She has firm control of the two Niles, and her co-operation in matters of irrigation will always be necessary to Egypt. There is one essential requisite for the future of the Sudan which I may suitably mention in conclusion, and that is the continuance of the British effort in the country. It would be disastrous if there was any question of evacuation.

DISCUSSION.

ADMIRAL SIR WILLIAM GOODENOUGH wished to know how the Blue Nile, coming down from Lake Tsana, would supply the cotton fields and what its control in the future was likely to be.

THE LECTURER: Lake Tsana does nothing at present. All that has been done up to the present time is to survey Lake Tsana, and to make plans for heightening it in future, if money is available. The water which is used for irrigating the Gezireh all comes from the Blue Nile, and the heightening of the level of the Lake, I imagine, would be done by blocking up a gorge through which the water would escape into the outer waters of the Blue Nile, thereby obtaining more water as and when wanted.

CAPTAIN ALTHAM asked if there were any sort of River Police on the upper waters of the Nile.

THE LECTURER: It is not policed in any way. In that respect the Nile bears no resemblance to the Yangste. The pirate does not exist on the Nile.

A MEMBER wished to know the extent of the area which a District Commissioner administers.

THE LECTURER: This varies, as some Provinces carry a bigger head of population than do others; in those Provinces the areas will be smaller. At a guess I should say the extent of the area which a District Commissioner has to cover—it is very large—might be something as large as Wales or as Lancashire and Yorkshire.

MAJOR LOW asked if there were any American interest in the Lake Tsana scheme.

THE LECTURER: Yes: the White Company of America has been brought in to do the preliminary engineering work, because, I believe, the Ras Tafari is rather frightened of those jealous Powers who hover around Abyssinia. In order to keep them all out he is employing an American Company. The White Company has been entrusted with the preliminary survey work. But now the great question arises as to who is going to pay for all this work. Egypt thinks she is going to be made to pay for the benefit of the Sudan and is loth to move in the matter; but eventually she will want that extra water, and she will probably have to pay.

A MEMBER asked whether cotton was the only product of the Sudan.

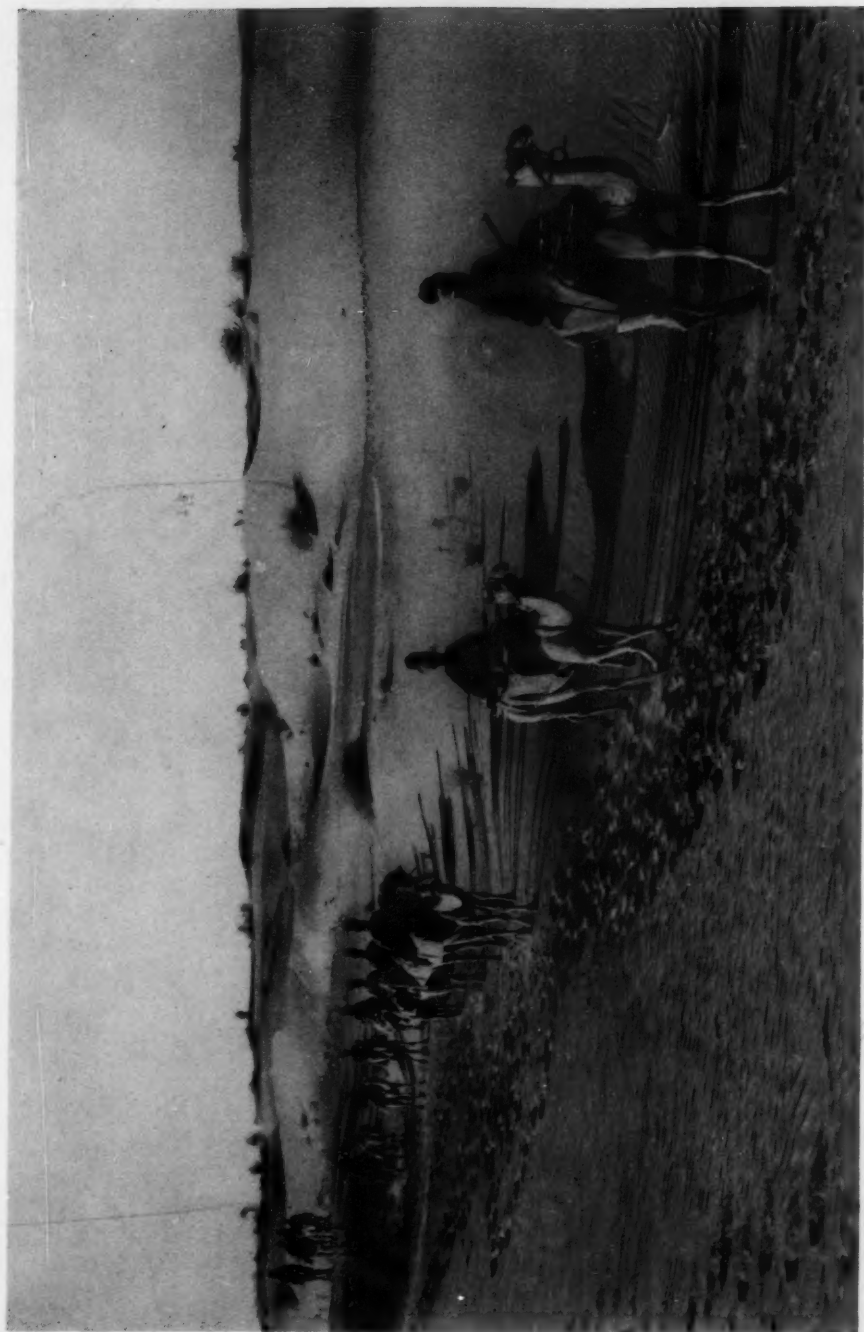
THE LECTURER: It is the chief product of the Sudan, which also produces gum and millet and some forms of grain. The reason why the Sudan is so hard hit at present is that the price of cotton has gone down so much. England buys most of her cotton. It is a very fine cotton—better than the corresponding grade of cotton in Egypt, because it is grown under more careful conditions; it is baled better and it is cleaner. It is mostly bought for use in Lancashire.

MAJOR CHATER asked whether the Italians were at present in occupation of Owenat. He imagined, from a statement in *The Times*, that a patrol had recently been sent there.

THE LECTURER: The Italians have been in occupation at Owenat for some months, surveying and measuring and laying out a landing ground. Whether they are there now or not I cannot say; it is not a very pleasant place in which to spend a long time.

THE CHAIRMAN, in his summing-up, emphasized the great variety of the peoples to be administered. "Not the least of the problems which confront the Sudan Administration is this marked divergence of type. Within the boundaries of the Sudan there are practically two complete entities—in the North a mainly Arab population, comparatively civilized and sophisticated, owning a common language and religion which they share with Egypt, and deriving their culture, such as it is, mainly from Egyptian sources: in the South a conglomeration of black tribes with no common language or religion, the most advanced with only a primitive form of civilization, and the more backward in a completely savage state. When, in addition to this, it is remembered that every Arab through countless generations has looked upon every black as specially created by Allah to be his slave, it will be evident that the granting of any measure of self-government to the Sudan, and at the same time ensuring that the black races are not exploited by their Arab neighbours, is not only a most difficult problem but one which will take a great many years to solve."

The customary votes of thanks to the Lecturer and to the Chairman were then carried by acclamation.



A PATROL OF THE CAMEL CORPS OF THE SUDAN DEFENCE FORCE

THE CAMEL CORPS OF THE SUDAN DEFENCE FORCE

By BREVET-MAJOR J. E. H. BOUSTEAD, O.B.E., M.C.,
The Gordon Highlanders.

LIFE in the Camel Corps of the Sudan Defence Force offers to the British officer, to whom such things appeal, attractions hard to find elsewhere in our Service. It brings him into contact with a people who by their simplicity, humour and primitive manly qualities, are a delightful study. It holds increased responsibilities of command and unequalled opportunities for trek and the nomad life of the desert.

HISTORY OF THE CAMEL CORPS.

First raised in the early days of the Egyptian Army in April, 1883, the Camel Corps was then an irregular corps, in which the men found their own food and clothing; it was composed of Sudanese and Egyptian soldiers mounted entirely on Government camels. Since then, it has undergone various changes in form and in composition as a result of the increased area, for which it is now responsible; also, owing to the experience of frequent "patrols," the opening up of roads, the coming of the motor car, and lastly the universal need for economy.

The newly formed Corps took part in the Gordon Relief Expedition of 1884-85. There followed operations on the Sudan Frontier from 1885 to 1895 and at Suakin in 1888, in which the Corps took a prominent part, as it did in the eventual re-conquest of the Sudan under Kitchener in 1896-98. At Kerreri, the Corps, which formed part of the mounted troops under Colonel Broadwood, was cut off by the advance of the Dervishes under Osman Sheikh El Din, and was only saved by the intervention of a river gunboat. The Corps was present at Gedid (1899) at which action the Khalifa was killed, and took part in the subsequent re-occupation of Kordofan Province.

Since 1901 the headquarters of the Camel Corps have been in Kordofan, but the Corps has been employed in frequent patrols in all parts of the Sudan. In November, 1902, the Egyptian companies were disbanded, the Sudanese companies were amalgamated into one company of picked men, while two Arab companies were raised and equipped as

irregulars. Then, in 1904, a third Arab company was raised and mounted on mules for operations in the Bahr El Ghazal Province, where camels are unsuitable owing to the climate and thick forest. On the conclusion of those operations this mule company was transferred away from the Corps, and from 1909 to 1919 the Camel Corps consisted of five irregular camel companies, four Arab and one Sudanese.

In 1916 the Camel Corps formed part of the expedition for the conquest of Darfur where, under the command of Major (later Major-General) Huddleston, it was present at the Battle of Berengia, which broke the Sultan of Darfur's power. During the ensuing two years, 1917 and 1918, companies of the Camel Corps were responsible for the security of Darfur, and two companies took part in prolonged operations against the Nuba in the Nyma Hills of the Nuba Mountains Province. The Darfur operations proved the value of a mounted infantry company in co-operation with camelry, and accordingly a camel company was converted into M.I. In 1921 the Camel Corps again marched on a punitive expedition to Southern Darfur, returning in 1922.

Following the withdrawal of the Egyptian units from the Sudan in 1924 and the formation of the Sudan Defence Force, the country was divided for the purposes of military administration and security into five areas. The Central Area, for which the O.C. Camel Corps was then made responsible, comprises Kordofan, including the Nuba Mountains Province and that part of the Upper Nile Province which lies on the left bank of the White Nile North of Tonga, a country somewhat larger than France.

In 1925 one camel company was disbanded, and three infantry companies formed from disbanded Sudanese regiments of the Egyptian Army were added to the Corps and stationed in the Nuba Mountains Province. As a measure of economy in 1930 one of these was disbanded and the Camel Corps took shape in its present form, which consists of a head-quarter company and mounted escort, two Arab camel companies, one Arab M.I. company and two Nuba infantry companies, forming a total of six companies.

NORTHERN KORDOFAN.

"This vast thicket," as Mr. Winston Churchill writes of Kordofan in his "River War," is an appellation more particularly applicable to that part of Kordofan which lies to the South of the 13th parallel of Latitude.

To the North the country rolls away to the Dongola border, about Lat. 16° 30' S., that is, some fifty miles to the North of Khartum itself. Undulating and sandy, it is a wide steppe land covered with rank grass

and maintaining mainly a nomad population, with many "jebels" or hilly ridges appearing along its wide horizons. Water is scarce and wells are few and far between, though from June to September in normal years the rains bring forth succulent grasses for the large herds of camels and sheep on which the tribes depend for their livelihood. Water and grazing are urgent factors in the lives of these nomads and are the frequent cause of tribal disputes. In the East of this large area is a belt of land supporting a more sedentary population, pastoral but also cultivating rain-grown crops. It provides the raw material of a hardy type of loyal and disciplined Arab soldier capable of a desert endurance beyond belief.

The true nomad will not enlist, hence it is that the mounted Arab companies of the Camel Corps are raised mainly from the pastoral population of the Gawamas and the Galabi-Hawari. A sprinkling of northern Arabs of somewhat sharper intellect also join these companies and frequently make excellent N.C.Os. They mainly come from the Shaygia and Gaali Tribes of the Nile.

SOUTHERN KORDOFAN.

South of Latitude 13°, thorn trees increase, thorn bushes thicken, sand merges into mud and cotton soil; the rains become infinitely heavier and start earlier in the year. Camels are seen less and less as one travels South, and the Arab tribes, though still mainly nomad and following the grass, have acquired horses and cattle suitable to a country which, in the rainy season, becomes in many parts an impassable swamp, infested with fly which kill off the camel herds but leave the cattle unharmed.

The problem of shortage of water from November to May remains the principal factor governing any military enterprise throughout this area where well-fields are scattered days apart; only a few of them will support a large mounted force.

Lions are plentiful throughout the South of this "thicket" country, and are a pest to the Homr and Messeria tribes, hardy cattle and horse-owning Arabs who attack them with spears and kill them on foot. The "thicket" stretches South to the Bahr El Arab along which Nilotic Dinka tribes graze their cattle and frequently quarrel with the Arabs who share their grazing rights. Few of these nomad cattle-owning Arab tribes will enlist except in times of economic distress.

THE NUBA AND NUBA MOUNTAINS PROVINCE.

East of this area and South of El Obeid, lies a mountain country of approximately the same size as Wales, the Nuba Mountains Province, now incorporated in Kordofan.

Here Islam, the Arab and his customs are confined to the valleys between the hills where naked primitive pagan mountaineers live and dance and wrestle and worship the spirits of their ancestors. They have in past years given more trouble to the Government and been the direct cause of more "patrols" in the Sudan than any other one tribe since the re-occupation. Humorous, courageous, honest, of magnificent physique, and full of physical pride in their strength, they enlist freely as soldiers in the Nuba companies of the Camel Corps and, as freely, fight their fellows in the hills when called on by the Government. In these days of economic expansion, under Government encouragement, they have taken to growing cotton.

The boulder-strewn and tumbled mountains stand out above the flat forested valleys to an average height of some 2,000-3,000 feet. The shrinking earth has retreated, leaving the hills behind, where in the days of Arab power the hillmen would resort to cavernous galleries between the boulders. Similarly to-day, a hill tribe impatient of Government control, and as a sign of resistance, will refuse to pay taxes or listen to their chiefs; then they will withdraw to their mountain fastnesses, honeycombed with caves large enough to hold whole herds of cattle. A column of troops and a squadron of aeroplanes may be required to drive them from these labyrinths into the plain. The attack on such strongholds is one of the specialities of the Camel Corps, and has been in the past a not infrequent military operation of patrols in the Nuba jebels.

Though all these hill people are known under the name of Nuba, yet few hill groups speak the same language, and they live in complete isolation from each other. Their rebellions and factions are, therefore, entirely local and have no wide political importance. This lack of cohesion is, naturally, a trump card in the Government's hand.

The young Nuba recruit coming naked from his hills when first enlisted as a soldier must learn Arabic before he can understand the orders of his superiors.

UNITS OF THE CAMEL CORPS.

Except for Dar Nuba the entire country from October to May is mainly waterless, while the distances are immense, so that mobility must be the outstanding feature of the Camel Corps. Now the native of this country, be he Arab or Nuba, has few wants, lives extremely simply and is capable of covering vast distances without fatigue whether on a camel, a horse, or on his feet, according to his origin and mode of life; The great aim, therefore, in the Corps is not to lose in the trained man the essentially soldierly characteristics which the young recruit naturally possesses.

(a) *The Camel Companies.*—Including the O.C. Camel Corps's escort, there are in Bara and in El Obeid some 400 camel-mounted soldiers. The camels are of the short-haired Bishari breed bought from the Bisharin tribe in the Red Sea Littoral, light trotting animals whose natural pace is an amble of four and half to five miles an hour on even going. They carry the soldier with four days water, his ration if need be for three weeks, and all his belongings, which include a blanket, an overcoat, his cooking pots, two hundred rounds of ammunition and eight days grain for his camel. Grain is not the natural food of the camel, but gives that additional stamina which is required for long forced marches with heavy loads. This total load, including the man, is about 400 lbs., which in the Camel Corps manoeuvres against the Western Arab Corps in 1933, was carried by both companies for 200 miles across country in a space of five nights, and this on the conclusion of a 400-mile march to the scene of operations¹. Administrative cares are thus reduced to a minimum. The camel is dependent on tree grazing for the bulk of his sustenance—the greatest asset in a country whose soil is sand or cotton soil scorched by the sun and whose principal pastures are trees bristling with thorns. A more efficient type of desert transport it would be difficult to find.

Each camel company consists of four rifle platoons and a machine-gun section of two guns. Each man is, if necessary, independent and can be sent off on his own for an unlimited number of days at a moment's notice, and so with each section and platoon.

The few baggage camels which accompany the company on trek and which carry the machine-gun ammunition, signalling equipment and officers' kits, move with the company and at the same pace.

The camel companies have very little tactical, but great strategic mobility. They are primarily for use, collectively with the mounted infantry company, as a mobile striking force, ready to move at the shortest possible notice across great waterless tracks to the farthest borders of the Sudan. But they can also be employed to assist the political service on police patrol work among the northern steppes of Kordofan, a duty which assists the Arab soldier to retain that inherent independence with which he joins.

¹ The nature of the exercise entailed splitting every camel company into two, and directing each fraction led by native guides over bush paths, widely dispersed, on to a concentration point some 200 miles distant.

On the conclusion of the exercise, the two companies marched 700 miles back to their station, except for a detachment of a half-company, which was sent up to the French frontier on a reconnaissance of some 1,000 miles; it returned to Kordofan six months later.

(b) *The Mounted Infantry Company.*—The men of this company stationed in El Obeid are drawn from the same sources as the camel companies but, in addition, a large number of recruits come from the semi-nomadic cattle and horse-owning tribes on the northern borders of Dar Nuba. The company is 145 strong, divided into three troops and a machine-gun troop mounted on mules, with the scouts and troop leaders on horses. In mobile operations they fulfil the roles of reconnaissance and pursuit, and give to the commander of a mixed force of camelry and mounted infantry a great additional tactical mobility.

The mules are brought from the highlands of Abyssinia, and in a country where grazing is sparse and wells few and far between, they retain their condition in a remarkable manner. Though only standing about 12 hands high, they are able to carry the soldier and his kit, an average weight of 18 stone. On the conclusion of a recent 500 miles march to the concentration point for manoeuvres, this company was called upon to march a further 176 miles in three nights across an unknown country through orchard bush, and accomplished this quite remarkable performance without a mule or man falling out and without a sore back or other injury.

In the rainy season, when large areas of Southern Kordofan are impassable to wheeled transport, and infested by a biting fly which causes heavy mortality among camels, the horses and mules remain immune and the M.I. company can be called on to go anywhere within the area. When, during any operations in the Nuba Mountains the defenders sometimes break across the sun-baked plain to seek refuge in some distant hills, the company is admirably qualified to intercept and round up the fugitives.

(c) *The Arab Infantry Company.*—The security of El Obeid is of the first importance, and forms the prime function of the Arab infantry company; 112 rifles strong, with three machine-gun sections.

El Obeid is the headquarters of the Camel Corps, a railhead and the seat of the Provincial Government. It is on the highway to the West, to El Fasher, French Equatorial Africa and distant Nigeria, from whence pass a steady stream of Moslem Pilgrims heading for the Holy City. It is the second most important town in the Sudan after Khartum.

(d) *The Nuba Companies.*—The two Nuba companies, each 100 rifles strong, are stationed at Dilling, a Government post some 100 miles from El Obeid, and at Kadugli a further 80 miles to the South. Both stations are surrounded by hills inhabited by most warlike Nuba tribes of Dar Nuba, who make excellent recruits. In each of these stations the mobile Nuba infantry company's function is to restore a critical situation in its early stages within their hills. For this purpose they march out 90 rifles

strong with one machine gun, each man carrying his complete equipment and 5 days' rations. A section of machine guns and a platoon of reservists 25 strong are left behind in reserve. For distant operations local transport is found during the rains, while in the dry weather motor transport can reach the garrisons within one day from El Obeid.

(e) *Mechanical Transport.*—In El Obeid there is a Motor Transport Company, equipped with Thornycroft and Ford lorries, primarily for military use. Should the political situation allow, two machine-gun sections of the Infantry Company are earmarked for instant despatch by lorries to the scene of any threatened trouble. Recent improvements in motor-car travel in sandy countries have greatly strengthened the Government's power. But the expense of a mechanized force, the enormous distances, the problems of petrol supply, repairs and spares, and the still limited mechanical skill of Sudanese drivers and mechanics, all tend to limit the functions of a mechanized force to the simple rapid transport of troops and machine guns. In the words of the Director of Supplies and Transport, "the demand for more mobility in a petrol age produces far greater administrative difficulties than any demand to increase mobility in the days of the horse, when living on the country was possible." Light car patrols, however, would be used throughout desert operations, but do not form part of the Camel Corps.

LIFE IN THE CAMEL CORPS.

As in the old Silladar regiments of the Indian Army, the commanders of the companies enlist their own recruits, train, promote and discharge them; in short they are the masters of their present and of their future.

A strong attachment develops between the British officer and his company after a few years. There are few who do not take to the primitive pastoral Arab with his humour, his kindness to his own people, his hardihood and indifference to all fatigue and discomfort and his attachment to those whom he likes and in whom he has confidence. Excitable and highly strung he is, and by nature and circumstances extremely careless and casual. Firmness, tempered with extreme patience and sympathy are, therefore, called for in his leaders. The best of the latter will at times be exasperated, particularly in the hot weather, by the carelessness of the Arab nature, but when the language has been mastered and sympathy engendered by command in the field, its soldierly qualities stand out so strongly as to temper impatience with admiration.

The Nuba, although he has the same qualities of simplicity and humour, is less highly strung, less excitable, more careful of his money, harder to get to know and generally of a slower intelligence. He is more

careful of his appearance when dressed as a soldier and takes naturally to neatness and tidiness and precision in drill and smartness in movement, qualities that do not come easily to the Arab soldier. Tall and physically perfectly developed, he presents a remarkable appearance either in the field or on parade. It is even more important than with the Arab that the British officer should remain with him as long as possible.

The British officer must first acquire an intimate knowledge of the language, without which he is unable either to command or to administer. He must then get to know the tribes from which he can recruit, develop an eye for the best type of Arab or Nuba recruit, and acquire and increase the recorded knowledge of the area in which he may be called upon to operate at any time. This latter is no mean task, for it is a country larger than France, largely unmapped, about which very little is known away from the main routes: for, as in all savage countries, the physical difficulties form the main obstacles to military operations; of these an unknown and constantly varying water supply is the chief difficulty. He must further acquire sufficient medical and veterinary knowledge to treat the men in the field and the animals, both in the field and the station.

Each company is a completely self-accounting unit, so that the commander is responsible for clothing, pay, arms and ammunition, as well as for the forage for all animals. The men receive a ration allowance from the Government and feed themselves both in the station and in the field.

There are Arab native officers, most of whom have been trained in the Military School, attached to each company. To these the commander can delegate his responsibilities. The senior native officer normally carries out the executive administrative duties of pay, clothing, forage, etc., under the British officer's supervision.

INDIVIDUAL AND COLLECTIVE TRAINING.

Operations in the Sudan usually consist of desert or bush warfare or of hill fighting against tribes armed mainly with spears, but possessing a number of very old rifles of indifferent quality, dangerous to their owners, mainly Remingtons captured from Hick's Army at Sheikau in 1883.

Training for these forms of warfare calls for strict discipline, but does not tend to develop the intelligence of junior leaders to a marked degree, as does section and platoon leading in modern European training. So in addition to practising African warfare in all its forms, all companies annually carry out section, platoon and company training as in the British Service.

Sections and platoons are always at full strength, and the development of junior leaders and their training reaches a high standard.

The main Camel Corps training grounds lie West of Bara and North of El Obeid, an open broken belt of country full of small features, across which the eye can range for many miles to the North to lines of red dunes, a veritable Salisbury Plain and a nursery for section commanders. Here the Arab companies spend successive weeks working through stages of collective training.

Water is plentiful, the grass though rank is mainly ample, and good tree grazing is at hand. By day the camels are turned out to graze with a small guard. Every evening the camels are brought in, grain-fed and camped down near the men, who, when the day's work is over, light their fires by messes and talk long into the night or settle down early to sleep according to the strenuousness of their training day. The British officer, his lone command lying in the hollow below his tent, is then able to establish a contact with his men, to train and develop them and watch them grow under his hands in a way that he can hardly do elsewhere.

The intelligent young Arab N.C.O. is promising material; the men treat the whole performance as though it were really war, throwing themselves wholeheartedly into any and every exercise of the mounted and dismounted training.

Much of the area is deserted, and ball ammunition can be used to any extent in section and platoon attack practices on trenches hidden in the scrub, from which targets appear by signal. Such practices are always fired over new and unknown ground, and are invaluable training.

In Dar Nuba the companies are not so fortunate, for the country is more thickly populated. But they have the opportunity for hill warfare training at their gates, and in this they excel and outshine the Arab companies.

COMBINED EXERCISES AND MARCHES.

During February, if no patrol or alarm has intervened, the Corps concentrates for combined exercises with the Royal Air Force at some suitable well centre in Kordofan. This concentration may be 200 miles from company stations. All companies normally spend nearly five months of the year away from station on training marches of 500-600 miles and manœuvres or patrols. The exercises comprise the normal operations of war against forces equally armed, and particularly practice in the envelopment of such a mobile enemy as is the native of the Sudan.

Before camel companies can be launched on an attack, the camels must be left in some safe place, for it must be realized that camel-

mounted troops are really "carted" infantry. The concealment of camels is comparatively easy, as they can be concentrated and barracked (couched) in a small space under cover, where in typical Northern Sudan country they are practically invisible.

In addition, the Corps is exercised in moving as a desert column through a hostile country, such as Western Kordofan or Eastern Darfur, where it would be liable to attack by a mounted enemy armed mainly with spears. Such a column moves by day in echelon of company squares, ready in case of alarm to form square immediately around the animals. The primary role of the M.I. company is immediate pursuit. At night the Corps camps in one large square behind a zareba with the M.I. company in the centre and the machine guns in pairs at opposite corners. During day halts the same camp formation is adopted, but the zareba is dispensed with except in very thick bush.

PATROLS: HILL, DESERT AND BUSH WARFARE.

Patrols in the Sudan come under three categories:—(a) intervention in tribal factions; (b) armed force to bring to reason a tribe which has murdered its chiefs, or failed to pay its taxes, or in other ways resisted Government control; (c) the immediate suppression of an Islamic rising headed by a local Fikki, calling himself the Nebi Eisa, or successor of the Mahdi.

The first is the smallest form of patrol, and frequently the appearance of a single company in the vicinity of the quarrelling tribes affords sufficient support to the political officer to settle the dispute. Such patrols may frequently entail forced marches through waterless country, with considerable hardship both to men and animals.

Of late years patrols of the second category have usually been against the Nuba, in a type of country already described. It is easy enough to destroy villages and carry off any remaining cattle, but to capture or overcome an enemy firing with Remingtons from their caves and moving from one cave area to another by subterranean passages, is a baffling and perplexing enterprise, calling for the highest qualities of discipline, initiative and daring.

The despatch of a sufficiently large force to occupy the whole of the cave areas, to guard the water, and to shoot at any Nuba seen moving about the hills is the only answer to this problem. The comparative isolation of one hill group from another makes the eventual surrender of the tribe a practical certainty, as their neighbours will be unwilling to afford them a refuge. The most recent of these patrols was in 1929, when five companies of the Camel Corps, assisted by aircraft, obtained the surrender of the Nubas in the Eliri Jebel.

An Islamic rising is a more serious problem than either of the above. Among the more fanatical and wilder nomadic Arab tribes of Kordofan and Darfur, the appearance of a Nebi (Prophet), calling himself the successor of the Mahdi, may have a quite startling success. The Mahdia showed how an Islamic revolt is liable to spread like a fire unless it be immediately extinguished. There have been many such attempts; the most formidable in recent years being the Nyala Rising of 1921, when the whole Camel Corps moved into Darfur by forced marches to suppress the rising and avenge the death of the two British officials killed in Nyala. The disaffected tribes were totally defeated at Kubbi in Southern Darfur.

Immediate offensive action and the instant defeat of the Fikki's followers, before it has time to snowball into a large force, is an absolute necessity. A single company may suffice to suppress a rising which within 48 hours may need a concentration of the whole Corps.

Whichever of these forms the patrol may assume, the campaign, as in most "small wars," is rather against nature than against a formidably armed enemy, and for such, the Arab or Nuba tribesman with all his native qualities of hardihood, endurance, mobility and indifference to fatigue, is most admirably fitted. When to these military assets are added those of discipline, marksmanship and apt manoeuvre, there is little left to be desired in troops designed for warfare in desert places.

TRAINING TROOPS ON FOREIGN SERVICE

By COLONEL H. E. FRANKLYN, D.S.O., M.C.

IN studying the problem of training for war, it is possible to lose sight of the fundamental condition that training troops at home must differ from training them on foreign service, not only because training at home is complicated by endless circumstances unknown abroad, but also because it deals with the training of the raw recruit. There are, of course, foreign stations where climate, employment, and lack of ground render the training problem as difficult as, if somewhat different from, any at home; but, in order to deduce some general conclusions, it may be assumed that abroad there exists enough ground, that plenty of men are available, and lastly that the climate does not too seriously interfere with training.

During the course of a tour of foreign service a unit is likely to be stationed in many unusual types of country including mountains and deserts. Consequently there arises a tendency to concentrate training on the kind of fighting suited to the character of the country in which the unit happens to be quartered for the time being. As the result of this varied experience it might appear that such a unit would be fitted to fight everywhere. This is by no means necessarily the case, for the personnel will in that same period change several times over; so much so that in the end a unit may scarcely be fit to fight anywhere. It is not difficult temporarily to play the role of the expert in different forms of local technique; by training on these lines a unit may gain a reputation successively in mountain and desert warfare, or even in hedgerow fighting in England; yet little of permanent value may have accrued therefrom, since its training has probably been far too specialized.

Training in varying types of country should be used as a means to the main end, i.e., fitness for any war. Something of lasting value can and should be extracted from every set of conditions; the desert provides the easiest medium for learning all forms of night operation; mountains and difficult or close country bring out the importance and difficulty of control, co-operation and leadership; wide stretches of uninhabited

¹ Much of the instructive lecture by Brigadier A. P. Wavell, C.M.G., M.C., delivered at the R.U.S.I. on 15th February, 1933, applies with equal force to battalions stationed either at home or abroad, but many of the problems then dealt with are such as arise only on home service. The author desires to express his indebtedness to that Lecture.

country give scope for realistic field-firing, particularly with machine guns, and can be used to teach self-reliance, initiative and power of command to young N.C.Os. There is no need to labour the point further; it is merely a question of bringing the whole training problem into the right perspective. Local circumstances must not, in fact, be allowed to dictate a series of unconnected training objectives, but must be used, here in one way there in another, towards attaining the true object of all training, that is—general, all-round fitness for war.

TRAINING OFFICERS.

There is, probably, no Commanding Officer who would not welcome outside assistance in the training of his officers; but abroad, except in a few larger stations, he may have no alternative but to carry out the work himself. The instruction of officers really falls under two main headings: practical and theoretical; the latter may be the real difficulty. Much can be done by setting and correcting papers, but this alone is not sufficient; there must also be personal instruction, yet it is just this personal instruction that is so hard to realize.

Let us examine the normal day of a regimental officer abroad. He gets up very early in the morning and spends a considerable time on the ranges or training area; after lunch he is generally ready for sleep, and even if he is not, the afternoon temperature—in summer if not at other seasons—is seldom conducive to anything else. After tea he plays games, often with his men; he goes to bed soon after dinner in preparation for an early rise next morning. The Commanding Officer may or may not get up so early; he is certainly busy all morning either in his office or going round training or barracks: even if he is available and alert in the afternoon, the rest of the battalion probably is not; in the evening there are social engagements and recreation, neither of which can be entirely neglected. And so it goes on day after day without any apparent opportunities for the lectures, discussions and other activities which at home usually take place on winter evenings between tea and dinner. The necessary time, of course, has to be found somehow and the weekly holiday seems to offer a great opportunity for the purpose. But experience has shown that, in a difficult climate, it is much wiser to leave this holiday alone. There is, of course, that very pleasant hour before dinner, which is often spent in comfortable relaxation or amusement. Needless to say any interference with this long-established custom is not likely to prove popular, but what equally good alternative can be found?

By making good use of these evenings a Commanding Officer may be able to satisfy himself with some reason that he is doing the best that he can with a difficult job, but it would be idle to pretend that sufficient

intellectual food is provided thereby for the more active minds. Some officers read and study by themselves, but they form a definite minority, particularly in the tropics, where there are many other attractions and distractions: it requires a determined character to sit down and work without any immediate object in view, with mosquitoes biting the ankles while so many pleasanter and cooler alternatives are close at hand. It cannot be denied that the normal officer is afforded better opportunities for exercising his body than his brain, particularly during his first few years' service. It is, of course, true that physical fitness is a great asset; but the brain, unless exercised, can run to seed every bit as quickly as the body. Most officers will agree, when the time comes for them to set to work for a Staff College examination, that they have found, to their dismay, that such is the case. The suggestion that there should be more admittances to the Staff College might constitute a satisfactory solution, but only if younger officers are encouraged to compete, so that the mentally barren period of an officer's first seven or eight years' service may be eliminated. Such a step would entail Staff College graduates returning more frequently to their units, thus helping a Commanding Officer to decentralize his instruction.

TEACHING LEADERSHIP.

Service abroad offers wonderful opportunities to the individual, whether he be an officer or a Lance-Corporal, to get away from civilization and thus inevitably to be thrown on his own resources. There is no finer school for teaching initiative and self-reliance, which together are at least as important for a leader as military knowledge. Shooting trips, desert motor trips and "treks" of every description are obvious and well-understood forms of education, but the idea is capable of extension with most valuable results. Whole sections and platoons can be sent off by lorry into the unknown, and there left to fend for themselves. In such cases it is advisable to set these troops a few simple reconnaissances to carry out, so as to ensure that they move by a circuitous route and away from all roads and tracks: they will, of course, be required to make their own provision for food and water. If left alone, they always seem to come home; if the worst comes to the worst, an aeroplane will quickly find them. The effect of these section and platoon marches, as the result of one season's experience, has certainly exceeded expectations. A Lance-Corporal who has really had to look after his men, e.g., make one water bottle per man last for twenty-four hours in a hot climate, and who has been entirely dependent on himself to find his way, probably by compass across completely unknown country, will have learnt the first great lesson of responsibility.

A description of the scheme of some platoon marches, now in contemplation, may make matters clearer. The company concerned is to go into camp about forty miles distant from barracks; the platoons will start from a semi-circular line of which the centre is camp, their destination; all will move over completely unknown desert, trusting mainly to the compass and depending on camels to carry the minimum requirements of food and water: it is sincerely hoped that no platoon commander will lose his way or have miscalculated his requirements in rations and water: it should be a great reunion when and if they all meet at the end of the third day.

SELECTION OF N.C.Os.

N.C.Os. who are expected to work on the above lines require a considerable amount of training and must, in addition, be men of character and resource. N.C.Os. moreover generally have a more difficult task in a battalion serving abroad than in one stationed at home; the men, as a rule, are older; the more difficult characters may have been sent abroad, where they are more likely to find their level among older soldiers; in addition hot weather is apt to shorten tempers, while the boredom engendered by out-stations may sometimes breed mischief. For every reason then the original choice of men to be appointed Lance-Corporal is of particular importance. Company commanders are not all equally good judges of which men to promote; some lean towards smartness, some towards brains and some choose almost entirely by character. Again, it is sometimes inevitable that a company commander has not had the opportunity to judge for himself; he then depends mainly on the recommendation of his Company Sergeant-Major, who is often guided chiefly by an individual's probable efficiency in barrack discipline. The only safe method is to centralize selection under the Commanding Officer and to put aspirants to a severe test before they are accepted. A N.C.Os. school, lasting perhaps six to eight weeks and under the best instructors in the battalion, seems to provide a sound solution.

Potential N.C.Os. in the first instance, of course, remain to be selected by company commanders, but they are weeded out during the course, until only the fittest survive. In addition to standardizing the selection of N.C.Os., this method ensures that before a Lance-Corporal is appointed he will have acquired some knowledge of how to instruct and what to teach, also that he will have acquired ideas, if only theoretical, of how to lead and handle men. Probably two such schools each year will suffice to supply enough young N.C.Os. The basis of these courses is drill; very many other subjects are taught, but the majority of the time available is devoted to drill. Owing to drill being

subject to exact rules, it is not difficult to become a proficient instructor therein, even after a few weeks. A young N.C.O., if he is to gain the confidence of a section of old soldiers, must be able to "take" them in something without making them or himself ridiculous; drill provides the easiest medium. Knowledge, even among children, seems to arouse a natural desire to pass it on. The young N.C.O. is no exception to this rule, and once he has acquired the power to teach something, he will not be averse to gaining knowledge so that he can continue to enhance his prestige with his section.

Apart from the value of drill in this connection, it provides a tonic with which most Commanding Officers would be sorry to dispense. It is extremely unlikely that, during the Great War, so many Commanding Officers would have concentrated on drill as a corrective to trench life, unless they were convinced of this tonic value. Ceremonial drill with band and drums once a week during the collective training season; two minutes' drill at the end of a day's training, when the men are thoroughly tired; a period of intensive drill immediately after manoeuvres; all these tend to emphasize the connection between drill and other forms of training. On the other hand, if a tonic be taken too frequently, it soon loses its effect.

VARIETY IN TRAINING.

Perhaps the chief obstacle to efficiency, at any rate in a hot climate, among men who have a certain amount of service, is staleness and boredom. The fact that the average private soldier makes so little progress after his fourth years' service cannot surely be because there is nothing more to teach him. He knows that he can acquit himself creditably at drill, marching and field training; he is probably good enough with his weapons to reach the usually low standard required for proficiency pay: there is, in fact, no apparent incentive towards improvement. This type of man might have been a N.C.O. had his military character been good enough; in any case, it is now somewhat late to aspire to promotion with any hope of reaching high rank. Still, even though he may not be suitable as a N.C.O., nothing but good can come from teaching such a man to be a leader. It is not unlikely that a day may come when he might be required to command a section on active service; and even if such necessity does not arise, the very fact of learning how to command and instruct men will inevitably make him a better private soldier.

Other aids to boredom are long marches over heavy sand, either before or after an exercise; working over ground, every feature of which is painfully familiar; instructional schemes which are so highly instructional that all interest is killed. These are bad enough, but the

most deadening of all forms of training is the route march, pure and simple. Remedies for these different forms of boredom are not really difficult to find. Buses, charabancs, lorries or even trains can convey sub-units to unknown ground: the time usually spent in marching to closer and better-known areas being thus made available for the scheme itself. Continuous schemes of twenty-four hours or more eliminate some of the marches to and from barracks. Schemes of the problem or puzzle type with several possible solutions, as opposed to the "cut and dried" or "cooked" scheme, turn training into a form of game; and an interesting game it is, or should be. It is a matter of experience that the "foot-slogging" inevitable with most exercises, particularly continuous ones, will make the men fit enough for any practical purpose without the dreary waste of time involved by route marches. Finally it is not necessary to have an exercise on every day of the week. It has been found in practice that good results are obtained by allotting two days in every week of the collective training period to the N.C.Os., whilst the men occupy their time with education, physical training and games. N.C.Os. seem to benefit more when they can put what they have just learnt into practice immediately; while the men do not get stale and sub-unit commanders are given the opportunity of preparing new schemes and of holding conferences on old ones.

NIGHT TRAINING.

Since the War various writers have been at pains to impress on infantry, certainly with some truth, how impotent they can be when moving on a battlefield in daylight. Perhaps these writers do not give sufficient credit to the progress made by infantry in concealed manoeuvre and infiltration tactics: they seem to picture a front of attack covered with bodies, alive or dead, whereas in fact if a well-trained battalion be attacking over reasonable ground all that the defenders should see is a man here and a man there, moving in apparent disorder and with seeming lack of purpose. At the same time, the task of a rifleman in daylight has, without doubt, been made much more difficult by the machine gun and the armoured fighting vehicle; but at night these special dangers to the infantry soldier lose most of their terror.

It is more than probable, then, that infantry which has really been trained to move and to fight by night will come into its own again. The success of so many night operations in the Great War is rightly ascribed to the development of a night sense as a result of the night life imposed by trench warfare. The possibility that a night sense of such a high standard can be developed in peace-time might be open to doubt were not this doubt dispelled by experience in those countries abroad, where bright nights and open country offer such wonderful facilities for

training at night. If full use be made of these opportunities, such a high standard of skill and self-confidence can be attained that operations may be carried out with almost as much accuracy as in daylight. There is a natural and deep-rooted dislike of night training in the Army: this dislike can be partly overcome by making schemes as interesting as possible. Such schemes, moreover, need not be purely military: as long as all ranks are given constant practice in moving over unknown ground in the dark, the main object will have been achieved.

Even if the desired standard in night work cannot be reached by a battalion as a whole, it certainly can be reached by its Intelligence Section, with the result that the unit can successfully undertake complicated moves under cover of darkness. Abroad it is possible to provide personnel for the Intelligence Section, in considerable excess of establishment, without the loss being felt by companies. There is no doubt that the Intelligence Section, when trained by an enterprising officer, provides an exceptional means of bringing on young N.C.Os. and potential N.C.Os.: when it is composed, as it should be, of some of the brightest individuals in the battalion, it becomes a very definite asset to the Commanding Officer and enables him to keep constant touch with the progress of any operations that may be in hand.

THE DESIRE TO LEARN.

No attempt has been made to cover every aspect of training in a battalion; it has only been possible to deal with a few points on what is a most complex problem. However good the training organization may be, and however progressive the methods employed, there will be no real success unless the unit is "alive," and unless there is a ready willingness, if not a definite desire, by all ranks to be trained. The more interesting the training, the more manifest will this desire become; but this alone is not sufficient. There must be something else which cannot be provided by training, but on which training can build and without which all work is mere labour. A battalion can only be made ready to train if it possesses a certain spirit or general outlook which is easier to recognize than to define. It is, perhaps, best expressed by the word co-operation: once there is an active desire by officers, N.C.Os. and men to work together towards achieving success in whatever task the unit may attempt, be it sport or work, there is no limit to what may be attained. The only risk which is then incurred will be a disease of self-complacency, which springs from over-confidence and low ideals, and leads to stagnation. The best remedy may be a reminder that, in all probability, a unit seldom if ever reaches a higher standard than 75 per cent. of a maximum possible degree of efficiency, and that it is only in the attempt to attain the last 25 per cent. of such a standard that the real difficulties will be encountered.

THE CONTROL OF COMMUNAL DISTURBANCES IN WALLED CITIES

By LIEUTENANT-COLONEL H. M. BURROWS, late 1/12th Frontier Force
Regiment.

The subject dealt with in this article is one which, in some form or another, might affect any of the three Services. It is reproduced by courtesy of the Journal of the United Service Institution of India.—EDITOR.

IN the House of Commons the function of our Forces was recently defined thus: "Not for continental warfare, but to maintain order within the Empire." More than ever, therefore, it is our duty to ensure that each of us is ready to give that assistance to the civil authorities to which they are entitled and which many of us seem so often incompetent of rendering.

The special feature regarding internal security duty in walled cities in the East, which I desire to emphasize, is that owing to the congested conditions under which the inhabitants live, communal trouble spreads like wildfire, and as often as not by the time troops arrive, the civil and police authorities are reluctantly compelled to describe the situation to the O.C. Troops, as far as they know it, and then give him a free hand to clear it up. It is therefore imperative that all officers should be prepared as far as possible to take over this responsibility, and make every effort to understand the people, their characteristics, languages and problems, in the locality in which they find themselves.

Actually in post-war years I have had to interest myself and take action in the City and *Sanjak* of Urfa in the Vilayat of Diarbekr in 1919, in Jerusalem, the capital of Palestine in 1920, and in Lahore, the capital of the Punjab in 1929-1932. Attention is drawn deliberately to the province and country in which these cities are located to remind readers that every city is dependent on its province, and if he is to deal with one effectively, he must not only have studied its inhabitants, but also the inflammable elements around it, generally agricultural militant races, and sometimes nomadic tribes, including professional raiders and criminal classes of all kinds.

Conditions inside the walled cities.—The inhabitants in such cities live crowded together in an atmosphere of uncleanness, poverty, rumour, crime, intrigue, mutual distrust and often terror. Panic flies through the bazaars as if by wireless. Shutters can be flung up in front of shops for no apparent reason. This is always a squall signal, and that is why Indian agitators love proclaiming *hartals*.

A single example will be enough. One morning I saw mobs from all communities in Urfa, a town with an official population of 90,000, streaming into the country from every gate with their household effects on pack animals and carts. As soon as the inlying piquet of two platoons had reached the market square and persuaded the shops to open, the populace came back again. The Armenians, Georgians and Assyrians said they had gone because a massacre had started. The Moslems stoutly maintained that the city had been captured by Arab tribes. I asked the local government and police to make enquiries and stop such nonsense. Twenty-four hours later the *Mutasarif* (Governor) submitted his report to the effect that a youth covered with blood had been seen running and screaming through the town; no one knew who he was or could find him. The *Mutasarif* and his municipal council were convinced that the youth was a Bolshevik agent trying to create disorder.

Thus on the flimsiest pretext any of the three cities I know will close their shops. One angry word or petty quarrel can then set the rival elements at each others' throats in dead earnest. News soon spreads to the villages and tribes. If revenge or hope of loot does not bring them in, any professional agitator can do so. This is why the outer cordon (preferably of mobile troops) is so important to detail as soon as troops are called out.

There is never any love lost between the city folk and the countrymen. The former are terrified of the latter's martial propensities. The latter loathe the former for their business acumen and their superior education which gets them into places of authority. Officers must therefore acquire a good insight into local geography and politics if they are really to help the civil authorities.

The relation between anti-government and communal disturbances.—These notes are headed "Communal Disturbances" because every soldier should understand how to deal with anti-government activity. His actions must be based on his military training in defensive tactics. Once communal trouble begins, I have been assured by civil and police authorities in India, that anti-government activity will not break out. Of this I am not so certain in other parts of the world, particularly in frontier towns, where the agents of other states or political organizations may try to seize the opportunity to overthrow the existing government

whilst its troops are engaged in quelling internal disorders. Be that as it may, anti-government demonstrations often develop into communal attacks as in Cawnpore in 1931. In fact I believe that in Bombay every kind of public movement, even a strike, turns into a communal affray sooner or later.

Preparation and preliminary training for dealing with communal disturbances.—Nobody likes internal security duty, and in these busy days when a unit is exercised as to what part of its collective and individual training or heavy office work can be cut out, there is every temptation to sit down near a city and hope for the best. There is bound to be a local scheme for such emergencies and occasional tactical exercises without troops on it may be held, but these are not nearly enough. Every time I have ever been called out I have found that most of the officers and non-commissioned officers do not know the main streets and buildings and cannot find their way about at all.

(1) The first requisite is maps—good maps showing all the small streets, and the nationality of the inhabitants of the various quarters; also smaller scale maps of the district showing from which towns, villages and areas mobs of reinforcements of disturbing elements may be expected. It is essential that these maps should *not* be kept locked up only to be available in emergency, but should be in the possession of every leader down to troop or platoon leaders and armoured car sub-section commanders.

(2) The local civil authorities must be persuaded if possible to allow troops frequently to march round and through the city, on which occasions junior commanders must show their men all points they may need to identify.

It is extremely good both for the inhabitants and the troops to see each other. It creates a good sense of mutual confidence, particularly as town populations are generally law-abiding, and get upset only by the activities of political firebrands.

If, however, the civil administration or higher military authorities consider this procedure inadvisable for some perfectly good reason of their own, then regular reconnaissances by a few officers and non-commissioned officers in plain clothes must be constantly organised.

(3) The points which officers and non-commissioned officers must learn are :—

- (a) Buildings that may require protection, e.g., power houses, wireless and railway stations, aerodromes, telegraph and post offices and banks.

- (b) Communal assembly places, e.g., political meeting grounds, places of worship, burial or cremation grounds.
 - (c) Storm centres, e.g., cross roads where mobs may clash.
- (4) Too much forethought cannot be spent on preliminary administrative arrangements for possible billets, horse lines, cooking places, latrines, aid posts, and communications.

Action when civil authorities require troops.—(1) The O.C. Troops proceeds at once to meet the civil authority wherever he requires him, gets the situation from him, makes his reconnaissance if necessary, and draws up his plan.

(2) At the same time such sub-units as may be required will stand to, and have transport sent to their lines, billets, or camps. In the above connection it is no use either :—

- (a) Sending sub-units down to the city separately or collectively in case of trouble without a trained O.C. to handle them properly from the start. All that happens is that such detachments may be committed piecemeal without being properly organized and without clear orders; all this may lead to confusion and perhaps regrettable incidents; or
 - (b) Ordering an unnecessarily large number of troops to "stand to" indefinitely in case of emergency, for the officers and men soon get bored guessing at what is going on, and might very well be better employed.
- (3) The number of the sub-units required by the O.C. Troops depends very much upon what are available and what area has to be dealt with, but the most practical strength for the cities I know is :—
- (a) 1 Squadron cavalry to patrol the outer circular road, gates and public grounds;
 - (b) 1 Section armoured cars to make periodic reconnaissances of the main approaches for mobs or processions coming in from the outlying district;
 - (c) 2 companies infantry for piquetting and patrolling inside the city, including a reserve with lorries ready to meet any mob reported by the mobile troops.

This may seem a small force, but to my mind it is quite enough to carry on without relief for forty-eight hours.

(4) So long as the O.C. Troops is working "in aid of the Civil Power" and not under martial law, his initial plans must include the request for a magistrate with each troop or platoon, and each sub-section of cars, and a constable, mounted or dismounted as the case may be, with each patrol.

(5) The first thing he must do is to secure the gates; he must then take his main "shaft" of infantry through the city roughly on the line dividing the two belligerent communities, dropping piquets at cross-roads with orders to patrol systematically towards each other and outwards to the gates.

It is always surprising to me to find how small an area these walled cities cover, although they contain a labyrinth of narrow streets and alley-ways. Within a few minutes of getting the "shaft" through, any organized fighting should have been found and stopped.

(6) It must be made clear to the troops in the initial orders that if any man tries to kill them they must be sure to kill him or bring him in prisoner. The best troops need this word of encouragement and it is the surest way of suppressing riots with the minimum of force and all round casualties.

(7) Finally officers and non-commissioned officers need to be reminded to jot down at the earliest possible moment the names of their prisoners and details of the crime they have been committing.

It is most embarrassing to be present in court a few days later unable to remember whether a particular accused had been found committing murder, rape, larceny, only theft or minor violence.

ILLUSTRATIONS OF LESSONS LEARNT.

How the country population can be the cause of disturbance in the cities.—On Easter Sunday, 1920, those of us, who had been to early service and had been breakfasting in the hotel by the Jaffa Gate of Jerusalem, saw a procession of fine-looking Moslems coming slowly up the hill chanting and dancing. Enquiries elicited that this was a pilgrimage of Hebronites *en route* to Ain Musa, the tomb of Moses, to let off a little religious enthusiasm as a simultaneous celebration of a big Christian festival and holiday. I was assured that it was quite normal. The fact that they were all brandishing sticks and knives could be understood as part and parcel of a sound militant faith. They stopped at the big open space inside the gate and listened more or less attentively to an address by an elegant gentleman in a *turbush*, mounted on a grey Arab pony. After the address the dancing and singing became even more energetic and vociferous when suddenly a number of whistle blasts were sounded. I cannot say how many of these came from political leaders and how many from the police. All I know is that the mob rushed down the main street into the city belabouring and knifing every Jew they met.

There was no telephone in the hotel, and I did not know that the Green Howards were at matins near by in the Armenian quarter. There

was nothing to do but go straight through the mob with two brother officers to the nearest cab rank, and send them to order the battalion to "stand to," whilst I reported to the Brigade Commander. This distinguished and capable officer took my report as all such reports should be taken. We discussed the boat race and other matters of moment until the inevitable telephone call came. The Military Governor gave him the situation in a few words, and the Brigade Commander then called up each of his unit commanders in turn and simply told them to put "Plan B" into effect. This plan meant that the 20th Punjabis were responsible for the outer cordon, the Green Howards for the gates, whilst my battalion were to take on the "ratting" inside the city itself.

When my two companies in readiness had arrived, it did not take me long to get the main "shaft" through Jaffa Gate—Muristan—main cross roads—Turkish baths—Mosque of Omar. This, with patrolling outwards to the Gates, immediately cut the city into its four quarters, and by early afternoon the bulk of the Hebronites had been handed over in the police station, the casualties had been collected, and the streets were quiet.

Urfa in 1919 quite spoilt me for internal security duty elsewhere, for the local Turkish Government was in far too difficult a position not to have to rely on the British garrison for help. The *Mutasarif* was worried by the numerous instructions received from Constantinople, which did not agree with those he was obtaining through me from the British Government. Mustapha Kemal was organizing nationally at Angora and the *Mutasarif* was possibly somewhat at sea. He had to try and maintain law and order in his *sanjak* with his gendarmerie considerably reduced, and his own Turkish 1st Lancers unavailable, as they had been pushed on by us to Severeke.

He therefore had to come to me with most of his troubles, and I only had to keep my eyes skinned for any form of treachery, of which I had ample warning in G.H.Q. intelligence summaries. These reports implied that Kurdish or Arab tribes with Turkish encouragement might try to push me back over the Euphrates, or besiege me in the same way as eighteen other British garrisons in Mesopotamia were besieged that year, and as my unfortunate French relief in November 1919 were treated. The latter capitulated after 60 days and were massacred.

The *Mutasarif* and his staff soon became very friendly especially after we had made attempts at conversation without interpreters present. I soon learnt that there were two stories to the local history, and although the town was noted for Armenian massacres, these had been greatly exaggerated, and the Moslems quite admitted that Christian business men were just as necessary to them as Hindus in the North of India,

or Jews all the world over, and they only felt incensed against them when economic conditions became too trying.

Prices had been high in the city and the *Mutasarif* attributed this not so much to profiteering as to the incessant raiding of market produce on its way to town.

I could not go scouring the country side for nomadic tribes, so I had to wait until they gave me a chance. On the 15th June I saw from my window the village of Chamouli, only eight miles away, in flames and the road to Urfa crowded with peasants followed by retreating gendarmerie. The *Mutasarif's* secretary brought me an ideal report to the effect that the Jais Arabs advancing from the South East had now pillaged twelve villages, that the gendarmerie could hold them no longer and would I, please, deal with the situation.

The inlying piquet, consisting of one armoured car—I only had two—and two platoons in lorries, was sufficient to drive the Arabs out of Chamouli that night, and put out the fire. At 0200 hours on the 16th I moved with two small columns, one mobile (two L. A. M. B. cars and six lorries packed with machine-gun and Lewis gun Sections, and another of infantry (six platoons) marching in support. We surprised the most forward Jais camp at daybreak, and bundled the Beni Muhammed chief into a lorry. The further camps struck with amazing rapidity and were soon fighting a mounted rear guard action. I called off when my armoured cars were held up by a defended stream, and an aeroplane, which I had asked for from Muslimiyah, came and helped me to disengage.

A "Claims office" was opened at once in Urfa, into which the inhabitants of the pillaged villages poured with extravagant bills. My adjutant and a flying officer picked up the location of the various chiefs from these visitors very quickly, and messages were dropped from the air at camps and villages warning individual sheikhs to come in to Urfa under penalty of bombing. By 0300 hours on the 19th the last of the five chiefs of the Jais was having coffee with me in my room, and explaining that he had no idea the British objected to local disputes, as he called them, and that he had £200 in Turkish gold and ten horses for me if I would like them. With the help of a political officer £1,800 Turkish gold was recovered from the five tribes for the twelve villages before the sheikhs were released.

Market prices then fell 30 per cent. and we had no more trouble, communal or otherwise, in the city or district, and were able to devote ourselves to the housing and feeding problems arising from the crowds of refugees of all classes who elected to make for sanctuary in Urfa.

The danger of prematurely withdrawing troops once the city is quiet.—
If all goes well during the first day on which troops help to restore order

in a city, they should not be withdrawn entirely for some days, possibly for about a week. It takes time for tempers to recover. If the troops have done their work well, the inhabitants' initial fears change first into curiosity and then gratitude for the peaceful conditions they have brought. Naturally, it is very necessary for the civil and police authorities to take over control again as soon as matters are back to normal, but one fatal example of premature withdrawal will be given.

By 1600 hours on Easter Sunday, 1920, Jerusalem was quiet and our arrangements for enforcing curfew so complete that the Brigade Commander and I were able to visit the Military Governor and Minister for Public Security to ask them their opinion on danger points during the night. After considerable discussion of several aspects of the trouble we were told that nothing must stop the market produce coming in at daybreak. We were asked to withdraw all troops by 0600 hours Monday, as they might frighten the farmers from coming in.

The Brigade Commander was very surprised, but complied. At 0600 hours I telephoned him that the city was clear of troops, and he replied ordering me to hide a couple of platoons somewhere convenient as he was sure tempers would still be running high. I had not begun to shave in my billet before news reached me that the Hebronites under police escort had marched through the city, broken out, and were in full cry in the Jewish quarter. Martial law was proclaimed at once, we hurried to our original posts, and although we managed to stop all activities such as murders, incendiarism, rape and looting by Tuesday afternoon, we had to be much more drastic than on the Sunday and we could not even begin a gradual reduction of troops on duty for a fortnight.

Controversial topics in connection with internal security duty.—

(1) No town and no situation is ever quite the same. The communal disturbance cannot take place unless some normal arrangement has gone wrong. It is only by learning the peculiarities of a city and its authorities that you can hope to tackle it with confidence. It does not matter how many instructions or rulings are issued for guidance based on experiences elsewhere; you are pretty sure to bump into some situation which has not been legislated for. It must be remembered that trouble comes unexpectedly. It is no use hesitating; and there is a general amnesty for all who have done their best quickly in good faith, using the minimum of force. There is a great tendency to make rather heavy weather of a simple job, especially if officers let their initiative and common sense be submerged by cloudy recollections that they are going to do something that is not quite in accordance with something else that has been laid down somewhere.

(2) I have been surprised to hear officers saying "Well I've told my men never to get within a hundred yards of a mob" or "I certainly won't distribute my battalion inside a city in smaller parties than a platoon." This merely shows they have not visualized what happens, and have not explained to all ranks not only their right to defend themselves, but their ordinary duty as citizens.

Patrols under an officer or N.C.O. from a good battalion are quite capable of stopping—and often have stopped—a roaring mob, or dealt with a house that has fired on them.

(3) It has been so strongly impressed that troops must be used as such in an entirely different way to police that many seem afraid to help the police when the latter need it and ask for relief. My experience has been that by the time one has had to get busy in a walled city the police have been on their alarm posts for forty-eight hours or so and have had a rough time. They are tired men. The quickest way to get them fit for duty again is to respond at once when asked to relieve them of piquet and patrol duty, so that the majority can rest for a night or so, while only those necessary as guides, arresting authorities, and traffic control remain at their posts.

(3) Since the regrettable incident in Peshawar in 1930, when armoured cars were burned in the city, great hesitancy in using them prevails. The orders are that armoured cars are not to go into narrow streets, where they cannot manoeuvre, nor are they to get mixed up with the crowd. In the light of these orders very thorough reconnaissance is necessary before armoured cars can be ordered into a walled city. Yet it is most desirable that they should be used down main arteries.

When troops have to enter the city either the streets are empty save for a few scurrying armed individuals and odd missiles, or packed with innocent persons through whom one must press without hurting them. Under both conditions a sub-section of armoured cars proceeding in low gear closely supported by the piquetting company is far the best formation in which to establish the "shaft." A mere hooting touring car is a poor substitute.

(4) British and Indian troops should not be mixed, but it is extremely easy to lose one's way inside cities and be out of touch with what is happening. This has led to discussions as to what is to happen when the Indian officer and the British sergeant find themselves together faced by a mob. The Indian officer can fire to disperse it, the sergeant can only fire in self-defence. An illiterate trans-border Indian officer's solution delighted me. His answer was "I should say 'Sergeant sahib, five rounds'!"

SIR RALPH ABERCROMBY
THE BICENTENARY OF A FAMOUS SOLDIER

By J. PAINE.

THE year 1734 witnessed the birth of many individuals destined to leave their mark on history's page. Prominent among them stands the name of Ralph Abercromby, who, like his distinguished lieutenant, Moore, did so much to revive the fighting spirit of the Army of his day. Born at Menstry, near Tullibody, in the little Scottish county of Clackmannan, he received his early education at a school of good repute in Alloa. Then followed further studies at Rugby, Edinburgh University and, finally, Leipzig, where, much to his father's disappointment, he developed a strong dislike to the law, the profession originally intended for him. But the manly, well-mannered and rather prepossessing youth fancied the more inviting career of a soldier. Accordingly his father purchased a cornetcy for him in the 3rd Dragoon Guards, and it was with this regiment that he served in the Seven Years' War in Germany, where General Sir William Pitt took a fancy to him and appointed him his A.D.C.

After the cessation of hostilities there came a change of regiment, but promotion accompanied it, for his first duty with the 3rd Irish Horse (afterwards the 6th Dragoon Guards) was carried out in the rank of Captain. Eleven years passed and Abercromby rose to command this regiment. It is curious to note that twelve years ago there took place the amalgamation of the two cavalry regiments in which Sir Ralph spent his regimental service. Under its present designation, the 3rd Carabiniers (Prince of Wales's Dragoon Guards), the identities of the once separate regiments are now preserved. After being appointed Colonel of the 103rd, or King's Irish Infantry, in 1781, Abercromby suddenly found himself on the retired list in receipt of half-pay, for the peace of 1783 brought disbandment to this unfortunate corps. Doubtless he imagined his military career to be at an end, for he took up politics, and as a Whig was returned for Clackmannan, the county of his birth. Wearied with his parliamentary duties, he retired in favour of his brother and went to Edinburgh, there to arrange for the education of his children, for at the age of thirty-three, when a Captain in the Carabiniers, he had married.

Abercromby's chance to prove himself a capable commander came in 1793, when on the declaration of war with France he applied for and obtained command of a brigade in the Duke of York's army bound for Flanders. Thanks to his level-headedness and skill he averted many a disaster in this mismanaged and inglorious campaign, in which so much more ill might have befallen the troops had he not been in command in the final retreat through Holland. A large percentage of our troops were mere recruits, the Duke of York was a poor commander, and to add to our troubles, our Austrian allies failed us badly. The Government, the Army and the populace, however, realized Abercromby's ability as a commander, and on arrival home he was honoured with the then much coveted K.B. He was past his sixtieth birthday and a Major-General of eight years standing when he received command of the very inadequate force sent in 1795 to wrest the French West India Islands from the Republican Government. Two of the islands were captured, and as a mark of appreciation of his services the Lieutenant-Governorship of the Isle of Wight was bestowed on him. He was not altogether happy when shortly afterwards he found himself Commander-in-Chief in troublesome Ireland, and was glad to vacate the appointment in 1798 in favour of the same position in Scotland.

Then, as now, distinguished Generals held the colonelcy of a regiment—really in lieu of any pay of their rank. Abercromby had many changes in this capacity, for between 1790 and 1796 he was successively Colonel of the 69th Regiment, the 6th Regiment, the 7th Dragoon Guards and the Royal Scots Greys. Nor was it inappropriate that such a distinguished general—an old cavalryman and a Scot—should be appointed to Scotland's only cavalry corps. The Greys were Abercromby's last regiment. Another great honour accorded to him was the presentation of a sword of honour by the City of London in recognition of his valour in 1799, when he was selected to command a division of the Anglo-Russian Army in the expedition against the French in Holland. With good right Parliament voted its thanks to him also, for in gaining possession of the forts of the Helder, the way was paved for the surrender of the Dutch fleet. In one of the actions during this campaign Abercromby had two horses shot under him, and "in no instance," wrote the Duke of York of this particular fight, "were the abilities of a commander, or the heroic perseverance of troops, in so difficult and trying a situation, more highly conspicuous."

The last scene was the campaign against the French in Egypt in 1801 where, to quote Field-Marshal Lord Roberts, "Abercromby's landing in Aboukir Bay, in the face of a determined enemy, was an operation of extreme difficulty, admirably planned and carried out." This historic

disembarkation was Sir Ralph's last and greatest achievement. On 21st March at the action at Alexandria he was nearly captured by a body of French horsemen, and received a painful sabre wound in the breast. Some hours later, when watching the progress of the battle from an earthwork, he suddenly fell fainting to the ground, the result of a bullet wound in the thigh. Though the wound had been inflicted earlier in the day, he had betrayed little sign of the agony he must have suffered. When placed in a litter he refused to accept for a pillow the folded blanket of a private soldier, and even demanded the man's name, that it might be returned to him. And so amidst cries of "God bless your Honour" from the lips of the men who loved him, Abercromby was borne to the flagship "Foudroyant," where a week later he expired. He was then in his sixty-seventh year. Full military honours were duly awarded him at the interment, and his tomb, in one of the bastions at Malta, may be seen to this day. After resting beneath a black marble slab in the Fort of St. Elmo, the General's remains were removed in 1871 to another part of the fortress, now known as the "Abercrombie Bastion." Shortly before the outbreak of the Great War the late Sir John Fortescue visited this tomb and, regrettable to record, found that it "seemed hardly to be honoured as it should be."

After his death his widow was created Baroness Abercromby of Tullibody and Aboukir Bay. Two of the four sons followed in their father's footsteps, and one, Sir John Abercromby, attained, like his father, the rank of Lieutenant-General. The barony became extinct ten years ago.

What have we now left to remind us of this soldier who did so much for the army of his day and who, like Wolfe, Moore and Picton, received his mortal wound in the hour of victory? A monument erected to his memory stands in St. Paul's Cathedral, an honour reserved only for the very great. It faces the font in the south transept of the Cathedral, a fine example of the old type of statuary, the work of Westmacott, who has depicted Sir Ralph falling from his horse into the arms of a stalwart highlander. His many achievements are set forth in glowing language on the base, on either side of which lies a figure of the Sphinx. The monument to Abercromby's comrade-in-arms, Sir John Moore, stands close by, whilst in the Crypt below lie the remains of another of his able lieutenants, Sir Thomas Picton. The Sphinx is the design which, with the battle honour "Egypt," is still borne on the colours of the two dozen odd infantry regiments which served under Abercromby in the campaign of 1801; the same honour is also emblazoned on the drum banners of the two cavalry regiments which were recently converted into armoured car units, the 11th Hussars and

the 12th Lancers. Three Indian units complete the list and, sad to recollect, there were two Irish regiments who prior to their disbandment used to display this honour, the Royal Irish Regiment and the Connaught Rangers.

The monument beneath Wren's dome is not London's only reminder of Abercromby. Cleopatra's Needle on the Victoria Embankment is another. This red syenite obelisk stands on a grey granite pedestal over eighteen feet high and is adorned at the base by two bronze representations of the Sphinx, the work of C. H. Mabey. Some splinters were chipped off the plinth by bombs dropped by German air raiders during the Great War. The obelisk is one of two erected by Thothmes III (circa 1475 B.C.) at Heliopolis, the On of the Scriptures and the birthplace of Moses. The central columns of the hieroglyphics are by this same Thothmes, but the outer columns were added two centuries later by Rameses II. During the reign of the first of the Roman Emperors, Augustus, the monument was removed to the Caesareum at Alexandria. The inscription on the south-western face relates that the "obelisk, prostrate for centuries on the sands of Alexandria, was presented to the British nation by Mohammed Ali, Viceroy of Egypt, a worthy memorial of our distinguished countrymen, Nelson and Abercromby." Then on the north-western face another inscription tells that "through the patriotic zeal of Sir Erasmus Wilson, F.R.S., this obelisk was brought from Alexandria cased in an iron cylinder. It was abandoned during a storm in the Bay of Biscay; recovered and erected on this spot by John Dixon, C.E., in the 42nd year of the reign of Queen Victoria, 1878." On the south-western face of the monument are inscribed the names of six seamen who "perished in bold attempt to succour the crew of the obelisk ship 'Cleopatra' during the storm, Oct. 14, 1877." The companion obelisk was erected in the Central Park of New York, fifty-five years ago.

A fine portrait of Sir Ralph Abercromby was painted by John Hoppner, R.A., who afterwards made several replicas of the original painting. The canvas in the National Portrait Gallery in London is unfortunately only a poor copy of this portrait; the original hangs in the Scottish National Portrait Gallery at Edinburgh.¹ It has been reproduced to almost as great an extent as Lawrence's portrait of Wellington; some of these reproductions compare most unfavourably with the original picture. In the Scottish National Portrait Gallery, in addition to Hoppner's portrait, there is the large painting by Colvin Smith, R.S.A., based on the Hoppner portrait; the head being the

¹ The trustees of this collection are of opinion that this is the original by Hoppner.

same, the figure and setting being provided by Smith. In the same gallery Sir Ralph's likeness will be found on a copper medal commemorating Aboukir and on a plaster cast of a medal which is in the British Museum. The figure of the mortally wounded general is the central figure in the picture of the Battle of Alexandria by Philippe Jacques de Loutherbourg, R.A., who also painted an attractive study of the troop-laden boats landing under enemy fire at Aboukir thirteen days previously. The Black Watch are very proud of the fact that a grenadier of the regiment saved Abercromby from being captured at Alexandria.¹ Equally proud, too, are the Gloucestershires of their back badge, a small sphinx within a laurel, granted to commemorate the occasion when they fought back to back in this battle.

Nevertheless, a higher value must be put on the literature which describes the great. For details of Abercromby's trials and triumphs in the field, search has to be made into the histories and despatches of his various campaigns. But in biography he has received scant attention, a rather surprising fact when consideration is paid to his long and crowded life, his military achievements, and his place in the public affairs of the time. His courage, kind-heartedness and great personal charm, moreover, should have endeared him to biographers. Abercromby was essentially a man of action and a great leader, yet he is conspicuous by his absence in the well-known "Men of Action" series of biographies, or even in Captain B. H. Liddell Hart's volume "Great Captains Unveiled." In fact the only work in any way approaching a "Life" of Sir Ralph is the "Memoir" written by James, Lord Dunfermline, the third son of Abercromby, and the Speaker of the House of Commons in the late 'thirties. This by no means exhaustive work was published at Edinburgh in 1861, a few years after the death of its author. Apparently the only other publications devoted solely to Sir Ralph Abercromby are a "Memoir," published at Dublin in the year of his death, and the so-called "Life" by "An Officer in the Army," published five years later at Ormskirk, Lancashire. The former ran into two dozen pages, and the latter finished on the hundredth page. Copies of these two contemporary monographs exist in the British Museum. But the bibliography of Abercromby would not be complete without mention of four well-known works, each of which contains a contribution on the General. The longest of these will be found in the Rev. G. R. Gleig's three-volume study of the "Lives of the Most Eminent British Military Commanders," published just over a century ago. Gleig, an indefatigable writer, served in the Peninsula and afterwards became Chaplain of

¹ A reproduction of the old print depicting the incident has a place in a pocket history of the regiment recently printed at Edinburgh.

Chelsea Hospital, where many of the men who had served under Abercromby ended their days. That indispensable work the "Dictionary of National Biography" also has its contribution, the writer of the sketch of Sir Ralph's career being H. M. Stephens. The other two monographs were written by Lieut.-Colonel à Court and the late Sir John Fortescue; both are worthy of perusal. The former appeared in that splendid work, edited by Spencer Wilkinson in 1899, "From Cromwell to Wellington: Twelve Soldiers," which was afterwards reprinted, without acknowledgment to the authors of each study, as "British Soldier Heroes: From Cromwell to Wellington." Fortescue's brief sketch will be found in his "Six British Soldiers," an admirable book, published in 1928. Sir Ralph was also one of six British soldiers whose careers were briefly outlined by J. Percy Groves in a poorly illustrated volume entitled "Some Notable Generals and their Notable Battles," published forty-two years ago. Groves is one of several writers who give the impression that Abercromby spent the whole of his regimental service in the one regiment.¹

Contemporary ballads in honour of the departed hero followed close on the termination of the campaign in Egypt, and the Royal United Service Institution Library possesses a stanza penned in the form of a lament in his honour.

The one-time popular practice of naming places, streets, public squares and taverns after eminent soldiers calls for special attention in the case of Abercromby, since only the most illustrious generals were accorded this form of public appreciation. The Iron Duke overshadowed everybody in this respect, but before his fame received popular recognition the nation's idol and hero was Sir Ralph Abercromby, whose name, like that of the Marquis of Granby before him, was hailed with delight by patriotic innkeepers, many of whom were old soldiers. Numerous tavern sign-boards displayed a crude likeness of Sir Ralph, and the spelling "Abercrombie" was sometimes employed. This spelling of the name will be found on some of the engravings executed from Hoppner's portrait of the General. The General Abercrombie in Friar Street, Blackfriars, is now the only licensed victualler's premises in London named after Sir Ralph. There used to be another at Artillery Place Woolwich, and there is still one at Arundel. The same honoured name appeared on the sign-board of a tavern in Lombard Street, London, just over a century ago, when Abercromby's memory was somewhat overshadowed by Wellington's victories. Edinburgh has its Abercromby Place, and Liverpool its district of Abercromby, both christened in honour of the General.

¹ Even Fortescue and à Court omit to mention that on receiving his Captaincy he was posted to the Carabiniers.

Tributes paid to Abercromby's memory are perhaps his best memorials. A most eloquent testimony is preserved in Moore's journal, and Sir Henry Bunbury describes him in the following terms: "mild in manner, resolute in mind, frank, unassuming, just, inflexible in what he deemed to be right, valiant as the Cid, liberal and loyal as the proudest of Black Edward's knights. An honest, straightforward, fearless man and withal sagacious and well skilled in his business as a soldier. As he looked out from under his thick shaggy eyebrows he gave one the idea of a very good-natured lion, and he was respected and beloved by all who served under his command." Worthy of reproduction, too, are the concluding words of the General Order to the Army, issued by the Duke of York on the occasion of Abercromby's lamented end: "His steady observance of discipline, his ever-watchful attention to the health and wants of his troops, the persevering and unconquerable spirit which marked his military career, the splendour of his actions in the field, and the heroism of his death, are worthy of the imitation of all who desire, like him, a life of honour and a death of glory."

It may justly be said of Sir Ralph Abercromby that in a long and gallant uphill fight he did more than any other General of his time to improve the discipline and fighting qualities of the British Army.

PROBLEMS OF THE NEXT NAVAL CONFERENCE

By MAURICE PRENDERGAST.

THE Naval Conference of 1935 will probably try to make the present system of "limited naval armament" operate for another ten years or so, but success will only attend its endeavours if concessions are made to the interested nations in the form of increased sea power. In 1930 we got "limitation and reduction"; in 1935, shall we get, instead, "limitation and expansion"—the expansion within agreed limits of the "controlled" navies?

An essential preliminary to the forthcoming Conference is a decision whether it is to undertake the revision and replacement of only one or of both of the great Naval Treaties. At the moment, the position is obscure, because the situation is partly positive and partly conditional. It is positive in the sense that we know that the Conference *must* undertake the overhaul of the London covenant; it is conditional in the sense that, if certain circumstances arise, it *may* have to deliberate on the Washington agreement. With some reservations, the whole of the London Treaty expires after 31st December, 1936. Part V, Article 23, second paragraph, says:—

"... the High Contracting Parties . . . shall meet in conference in 1935 to frame a new treaty to replace and to carry out the purposes of the present Treaty. . . ."

The "present Treaty" here referred to is, of course, the London Treaty, and no authority seems to be given to the 1935 Conference to produce any new convention which will replace the provisions of the Washington Treaty.

As to the Washington agreement, the conditions governing its expiration are set out in Article XXIII of that Treaty, and may be summed up in this manner:—

- (1) This Treaty remains in force until 31st December, 1936, provided that one of the signatory Powers has given notice, *before 31st December, 1934*, of its intention to withdraw.
- (2) If the condition stated in (1) is not fulfilled, then the Washington Treaty runs on indefinitely after 31st December, 1936, and until two years shall have expired from the date on which one of the Contracting Powers has handed in its notice of withdrawal.

- (3) Whether the conditions under (1) or (2) arise within twelve months after the handing in of a notice of withdrawal, the Contracting Powers are to meet in conference.

The three steps, therefore, are: Year "A", notice of withdrawal; Year "B", Conference; Year "C", termination of the Treaty. If these years happen to be in the sequence "A" = 1934, "B" = 1935, "C" = 1936, then 1935 does become the year for a Conference to discuss the replacement of the Washington Treaty. But if the sequence should happen to be 1935 "A", 1936 "B", 1937 "C", then 1935 is not a year when the Washington Treaty can be discussed, and the Naval Conference of that year can only concern itself with the London Treaty.

The establishment of the "5-5-3" ratio was the cardinal principle of the 1922 compact at Washington. Japan wishes to have this ratio taken up and re-considered at the 1935 Conference, and there is, apparently, only one method by which she can get the matter put on the agenda; that is by making 1934 the year of denunciation in order that 1935 may become the year of discussion. But if she does not give the required intimation before this year is out, any raising of the "ratio question" at the 1935 conclave may be ruled out of order, inasmuch as that assembly has only power to deal with the London Treaty and has no warrant to tamper with the Washington Treaty. If Japan should denounce the old Treaty, she will thereby ensure that her claim to "parity" is discussed at next year's Conference; but she cannot guarantee that her claim to a higher naval status will be granted. If her plea is rejected, what situation will then confront her? Just this: by her own act she will have killed the old Treaty, and thereby liberated Britain and America from their pledges to her, and when the year 1937 dawns, those two nations can outbuild her to any extent they choose.

It might be all to the good if Japan did take the drastic course. The 1935 Conference could then make a thorough job of its work, and replace the two expiring Naval Treaties by a single, new and comprehensive covenant. For one thing, the First Sea Lord has remarked that our present battle fleet is getting old: so old, that we must commence the work of replacing it before long. But what are we to replace it with? The Washington Treaty contained a schedule, under which the British battle fleet of 1921 was to be replaced, by the year 1941, by a new force composed of fifteen 35,000-ton units. This programme is now suspended but not revoked, so we are still legally bound to it. Do we really need a fleet of fifteen "Nelsons"? If the Board of Admiralty and the Naval Staff deem capital ships of 25,000 tons to be quite large enough, both for our own needs and those of foreign nations, then the question arises: why build ships ten thousand tons bigger? If the

Conference has, through the action of Japan or some other Power, to consider the replacement of the Washington covenant by a new document, it will have to re-consider the schedules for replacement of capital ships embodied in the 1921 agreement, and so, under a new scheme, we might be furnished with a far more acceptable system of renovation. The battle fleet is the backbone of our Navy, but how can we plan a fleet for the future, until and unless we get the replacement of our existing battle squadrons settled in a satisfactory manner?

LIMITATION—ITS DEFECT AND REMEDY.

The present code of naval "limitation" need only be briefly sketched out here. In the main it consists of: (a) the establishment of ratios in strength; (b) definitions of the several types of war vessels and their segregation in groups or categories; (c) the allotment of a maximum quantity of tonnage to be held in each category; (d) rules for age-limits, scrapping and replacements of ships; and (e) the erection of boundaries in regard to ship-sizes and gun-calibres. It is no more and no less than a mathematical method of measuring and controlling pure mechanism, for man-power is left entirely out of the count. As a code, it has worked fairly well, but it has one notorious defect. The blemish is the indication of maximum permissible sizes in types of war vessels and guns, which is simply a vicious kind of auto-suggestion. "Here," say the 'limitation' Treaties, "are the biggest kinds of fighting ships you may lawfully build, and the largest guns you may lawfully emplace in those vessels." Immediately there comes the suggestion, "why not build them?" After it was made known that the largest legitimate form of cruiser was a vessel of 10,000 tons armed with 8-inch guns, the great naval Powers began to build cruisers of that very species—and later to quarrel about these vessels being of an "aggressive" type! Experience has proved that the indicated maximum becomes the accepted minimum. Name the biggest type of war vessel that can be built, and the nations will begin to build it and nothing less. This is only natural: a man who stands on the top rung of a ladder knows that no one can climb higher than he; a nation which builds the biggest thing permissible in war vessels knows that its creations will not be surpassed by any foreign rival.

The British Empire is scattered all over the world: the dispersion of territories and the long sea-routes linking our lands inevitably entail a dispersion of our naval forces. Such dispersion, in its turn, requires that we should possess numerous ships of adequate fighting power, and not a Navy composed of a few vessels of great individual size and combatant value. Given a certain ration of tonnage—as is now the custom under the "limitation" Treaties—our endeavour has been to extract

from that allowance the largest possible number of the smallest size of serviceable ships. But other nations, whose problem is confined to one large homeland and a few distant colonies, are inclined to "build big," and to favour small forces of very large ships. They are not compelled, as we are, to distribute their naval strength over the Seven Seas. Our system of sea defence requires ships; they are still fascinated by the glamour of size, and so there is conflict between our policy and theirs. Moreover, the existing Treaties are coarse, rigid and inflexible in the matter of "categories," for there are great gaps between the authorized maximum ship sizes. Setting aside aircraft carriers, we find surface combatant vessels harshly split up into three sizes: the capital ship of 35,000 tons, the cruiser of 10,000 tons, and the destroyer of 1,850 tons, and nothing in between. The result is that navies are being rigged out in ready-made, reach-me-down styles and sizes of war vessels from the Washington and London slop-chests. A shockingly bad fit they may be, but they have to be worn just because they are stock size. Fleets are being equipped with unsuitable patterns of fighting vessels simply because foreign navies happen to be acquiring ships of that size. Our new cruisers of the "Minotaur" class seem to be an outstanding example of this imitative process.

It cannot be denied that if "limitation" is to be carried on, some definite boundary must be marked out in the matter of size and gun-calibre in the various classes of war vessels. But must the maximum always be written down, and nothing else? Surely we could propose, in association with the largest sizes of ships and guns, *lesser alternatives*? Let us, therefore, suggest the following system:—

- (1) The present method of allowing only a certain maximum quantity of total tonnage in each category shall be continued; but
- (2) In addition to the maximum permissible size, "A", two other sizes—medium, "B", and small, "C", should be indicated in each category; and
- (3) There should be perfect liberty to build up to the tonnage limit by any desired combination of units chosen from the three proffered types, "A", "B" and "C".

This would provide a system of "limit and latitude"—limit in the total tonnage and latitude in the choice of suitable ship sizes. The essence of the idea is "unity in trinity and trinity in unity"—unity in the category, and trinity of types within the category.

"TRINITY" BATTLE FLEETS.

As it happens, we have now reached a stage where there is trinity within the unity of the capital ship category, for three types—large,

medium and small—are now under discussion. Respectively they are :—

- "A" Washington Type : 35,000 tons ; 16-inch guns.
- "B" { French "Dunkirk Type" : 26,500 tons ; 13-inch guns.
- Admiralty "A" Type : 25,000 tons ; 12-inch guns.
- Admiralty "B" Type : 22,000 tons ; 11-inch guns.
- "C" German "Deutschland Type" : 10,000 tons ; 11-inch guns.

Suppose that a new Naval Treaty indicated, not one maximum type of capital ship as permissible for future construction, but three types, viz., 35,000, 25,000 and 10,000 tons. Then something like the following alternative would be open to us for replacement of our battle fleet :—

<i>Washington Treaty Scheme</i>	<i>Tons</i>	<i>Alternative Scheme</i>	<i>Tons</i>
15 capital ships, each		15 capital ships, each	
35,000 tons, total	525,000	25,000 tons, total	375,000
		15 capital ships, each	
		10,000 tons, total	150,000
		—	—
		30 capital ships, total	525,000

But this is not enough. Under the London Naval Treaty, the United States was offered the chance of commuting a certain amount of 8-inch gun cruiser tonnage into 6-inch gun cruiser tonnage, but no use was made of the opportunity. Again, permission was given under the same Treaty to convert cruiser tonnage into extra destroyer tonnage, but here again no nation has, so far, exercised this option. If we wish to persuade foreign nations to build moderate-sized capital ships in preference to big ones, we should make it worth their while to do so by offering them something really attractive in the way of a conversion scheme. It is not likely that any country would exercise a right to build two 17,500-ton battleships instead of one 35,000-tonner. But a scheme under which (a) two 35,000-tonners could be "commuted" for three 25,000-tonners, or (b) one 35,000-tonner for four 10,000-tonners, would present a substantial inducement, for it would offer a premium of extra tonnage to those countries which built medium and small sized capital ships in lieu of very big ones. The idea is that, for the commutation of tonnage out of a larger type into a smaller one, there should be a reward in the shape of an increase in the total licensed quota of tonnage. We should have the advantage of this bonus as well as other countries. As an illustration, here are three comparative battle fleets, made up by large, "A", medium "B" and small "C" types of capital ships :—

<i>Max No.</i>	<i>Type</i>	<i>Each ship</i>	<i>Maximum total tonnage allowed</i>	<i>Increase of total tonnage allowed</i>
15	"A"	35,000 tons	525,000 tons	—
22	"B"	25,000 tons	550,000 tons	+ 25,000 tons
60	"C"	10,000 tons	600,000 tons	+ 75,000 tons

It would, of course, be permissible to build up fleets composed of a blending of two or all three types. As specimens of "three type" battle fleets, we can show:—

<i>Battle Fleet "X"</i>		<i>Battle Fleet "Y"</i>		<i>Battle Fleet "Z"</i>	
	<i>Tons</i>		<i>Tons</i>		<i>Tons</i>
2 "A"	= 70,000	4 "A"	= 140,000	8 "A"	= 280,000
18 "B"	= 450,000	12 "B"	= 300,000	8 "B"	= 200,000
8 "C"	= 80,000	16 "C"	= 160,000	7 "C"	= 70,000
<hr/>		<hr/>		<hr/>	
28 ships	= 600,000	32 ships	= 600,000	23 ships	= 550,000

It would be necessary to have some safeguard which would prevent a nation from earning the "commutation bonus" of extra tonnage by building just a few medium and small-sized ships and a lot of large ones. For example: 14 "A" + 3 "B" + 3 "C" = 595,000 tons. A proviso should be made that any "mixed" battle fleet which comprises eight or more "A" type capital ships should be entitled to a bounty of only 25,000 tons. Battle fleet "Z" shows how this safeguard would operate.

The First Lord has said that the Board of Admiralty will have nothing to do with the adoption of 10,000-ton battleships for our Navy, but that rejection was of the plea that small capital ships should only be built to the entire exclusion of large ones. Under the scheme outlined above, we could earn a "commutation bonus" of 75,000 extra tons by building a few small battleships in addition to medium-sized or large ones. Would it be or not be to our benefit to do so? It used to be our policy, at one time, to keep small battleships, like the "Barfleur" and "Centurion," and the "Swiftsure" and "Triumph," stationed out in the Far East. Sending a squadron of small fast battleships to Singapore would be a revival of that policy; such a step would be one at which Japan would probably not take umbrage, whereas the arrival of big battleships out East might cause a considerable flutter in the Tokyo dovescots! Our Eastern Fleet—the East Indies and China Squadrons, the Royal Australian and New Zealand Navies—would then have an immediate backing force instead of having to rely, as it has now, upon the arrival of battleships from the distant Mediterranean. Moreover, we have not now what we had during the Great War, a number of old battleships and armoured cruisers for ocean convoying work. If the need arose again for such work, we would have to draw on our meagre force of cruisers, whereas if small battleships were available for convoying, cruisers could be released for work much more suitable to their kind. A squadron of small battleships would be available in times of peace for tactical instruction and other training duties, and in war for bombardment work. In war, opportunities arise when great results

can be won, if great risks are run. There is naturally a reluctance to embark large and costly ships on such adventures, but there would be less hesitation about the employment of small ships. In brief, the small battleship appears not to be worth building by itself, but to be justified as an additional and auxiliary form of capital ship. If the 10,000-ton type was taken into a Treaty between the great naval Powers, and there simply and formally recognized as a standard type of capital ship, Germany would be much mollified. She would no longer feel, as she does now, that she has been ostracized in the matter of naval armaments.

CRUISERS, DESTROYERS, SUBMARINES.

The same principles of (1) a trinity of types within the unity of the category, and (2) a tonnage-bonus for commutation downwards, could also be applied to other and lesser types. The very variety of operations on which cruisers can be engaged—fleet scouting and screening; support and attack of lighter naval forces; colonial defence and attack; trade defence and attack; and so forth—make the establishment of any single, standard form of cruiser a futility. Here there seems to be a special need for "trinity in unity," i.e., the sub-division of the cruiser category into three species. The tripartite separation might be arranged thus:—

- | | | |
|-----|---|-------------------------------|
| "A" | 10,000 to 7,501 tons with either (a) 8-inch guns or (b) more than nine 6-inch guns; | |
| "B" | 7,500 to 5,001 tons | } with 6-inch or lesser guns. |
| "C" | 5,000 to 3,001 tons | |

Basis for "commutation bonus": for every 2 tons of "A", 3 of "B"; and for every 3 of "B", 5 of "C".

Note.—It might be agreed that cruisers in existence on 1st January, 1935, which exceeded the upper tonnage in "B" division by 5 per cent. and in "C" division by 10 per cent., should not by that excess be "promoted." Thus, the French "Jean de Vienne Class" (7,600 tons) and the British "Emeralds" would stay in the "B" division, and the British "Arethusa Class" (5,400 tons) would remain in the "C" section.

There is urgent need for the establishment of "trinity in unity" in the destroyer category. France, by virtue of her non-participation in Part III of the London Treaty, has been able to build up a most formidable force of thirty super-leaders—vessels of 2,126 to 2,569 tons, armed with five 5.1 or 5.5-inch guns, six to nine torpedo tubes, and with speeds ranging from 35½ to 42 knots. So meagre was our allowance for new cruiser construction under the London Treaty that we were virtually prohibited from building vessels comparable to the new French craft. The handicap would certainly be removed if three sub-types

were arranged within the destroyer category, viz. :-

- "A" Scouts of 3,000 to 1,851 tons ;
- "B" Flotilla leaders of 1,850 to 1,501 tons ;
- "C" Destroyers of 1,500 to 601 tons.

The "commutation bonus" would also apply, more particularly because in 1930 we accepted 52,700 tons as our maximum allowance for submarines by the end of 1936, but France laid claim to 81,989 tons of submarines by the same date ; we regarded this as unsatisfactory, but as the Disarmament Conference might work out a satisfactory solution of the submarine problem, we said we would not press the matter then. But in case the Disarmament Conference did not solve the question, we reserved the right to apply Article 21 (the "Escalator Clause") of the London Treaty to our allowance of destroyer tonnage later on (see Cmd. 3812/1931: "Memorandum on the Results of the Negotiations with France and Italy for the Reduction and Limitation of Naval Armaments, February-March, 1931," page 4: 3—*Submarines*). The World Disarmament Conference has not solved the submarine problem, let alone any other of its problems, and the "Escalator Clause" has not, so far, been applied for the enlargement of our destroyer tonnage. Suppose that a new Naval Treaty granted us an additional 70,000 tons, wherewith to build, if we pleased, "scouts" similar to the French super-leaders ; and suppose, again, that we thought that "scouts" of about 2,300 tons were not required for our Navy ; then we could exercise our right to "commute tonnage downward with bonus" in the ratio 2 : 3 : 5 for the destroyer category types "A", "B", "C" as given above. By so doing, we could convert our unused 70,000 tons for "scouts" into 175,000 more tons for destroyers, these 175,000 tons being additional to the 150,000 tons inscribed in the London Treaty as our allowance for destroyers.

As for submarines, it will suffice to remark that the large navies now have a fairly common policy of construction which tends to the production of three types : (a) an "ocean patrol" type of 1,300 to 1,850 tons ; (b) a "medium patrol" type of 500 to 700 tons ; and (c) special mine-laying boats. So here is a trinity of types already forming within the unity of the submarine category. Space prevents any discussion of aircraft carriers and other forms of combatant or semi-combatant war vessels. They, in their respective kinds, are also capable of sub-division into three sub-types.

A BASIS FOR A NEW NAVAL TREATY.

The extremely rapid and successful construction of the Crystal Palace in Hyde Park was largely due to the fact that Paxton, its designer, planned the whole structure on the basis of seven or multiples of seven in all its dimensions, great and small. It was a system easily

and quickly grasped by all concerned in the work, from the dullest artisan upwards. If we are to have a new Great Glass House in the form of another Naval Treaty, designed to replace the old edifices of Washington and London, then the new erection might well be planned on a basis of threes and multiples of three. The new Treaty should implement an agreement between the two "trinities" of naval Powers, one major and the other minor. The "major trinity" would be made up by Britain, America and Japan; the "minor trinity" by France, Germany and Italy. It could comprehend all naval armament in nine "categories" arranged thus:-

- | | | |
|-------------------------------------|----------------------|------------------------|
| (1) Capital ships. | (5) Submarines. | (8) Gunboats, etc. |
| (2) Aircraft carriers. | (6) Fleet Air Arm. | (under 600 tons). |
| (3) Cruisers. | (7) Sloops, etc. | (9) Specially licensed |
| (4) Scouts, leaders,
destroyers. | (2,000 to 601 tons). | ships. |

Within the "combatant" categories, (1) to (6), there would be "trinity of types within the unity of the category"; also the power to commute downwards (with a premium of increase in total tonnage), from the maximum permissible type to the medium and smaller types.

As to ourselves, it is suggested that our policy might be directed to the following ends:-

- (1) Any granting of "parity" to Japan must be counterbalanced by concessions on her part, e.g., the surrender of her mandate over the ex-German insular possessions in the Pacific, and the lifting of the embargo against improved or new fortifications, naval bases, etc., in the Far East (Hongkong, etc.).
- (2) The settlement of the battle fleet replacement question on a basis which will allow us to create a new fleet of at least twenty capital ships.
- (3) The granting of an additional quantity of tonnage that will allow us to build up a cruiser force of at least seventy units, all vessels being "under age."
- (4) The award of sufficient additional tonnage to enable us either to build "scouts" comparable in size and fighting power to the French super-leaders or, alternatively, to improve our destroyer strength relatively to French submarine strength, if France does not abate her claim to a very large submarine force.

And lastly, whatever may be the outcome of the 1935 Naval Conference in the matter of treaty-making, let us hope its deliberations will be directed to one end, "trinity in unity" and "unity in the trinity"; namely, that the three great naval Powers will dedicate their three fleets to one common end—the preservation of an honourable peace on the seas.

BRITISH STRATEGY

By LIEUTENANT-COMMANDER G. B. H. FAWKES, R.N.

STRATEGY, in the broadest sense, may be defined as "the art of applying national power and utilizing available resources so as to achieve the object of a war." In order to determine the form which British strategy should take, therefore, it is necessary first of all to consider wherein lie the strength and resources of the Empire.

Britain herself is a great manufacturing and trading country; but she is far from being self-sufficient, and her resources and those of the Empire are widely scattered over every part of the world. It is only by the exercise of sea power, therefore, that they can be utilized as and where they are required. Thus we see at once that any strategy we employ must be based on sea power.

We have a number of advanced detachments of our fighting forces to protect our most important interests abroad, and on the outbreak of war they may have to do the best they can against a superior enemy until reinforcements arrive. Sea power alone can enable those reinforcements to be sent. Even in the case of air reinforcements being able to fly to the threatened area, ground personnel, fuel, and other supplies must be sent by sea. Such are the geographical circumstances of the Empire as they affect British strategy.

In the economic sphere we are still the wealthiest and most influential nation. Our Navy is inferior to none. Our regular Army is once more, as it was on the outbreak of war, little more than a weak advanced guard of the potential military power of the Empire. But we have shown that Britain and the Dominions are capable of producing a national army comparable to that of a military power of the first magnitude. Our Air Force has dwindled to fifth or sixth place, but there is little doubt that, in emergency, it could be increased very greatly and fairly rapidly. So much then for British and Imperial resources to give effect to our strategy. What form should that strategy take in order to give the fullest scope to our sea power?

There are three schools of thought on this matter which may be classified as the Insular, the Continental, and the Maritime. While they agree on the general definition of strategy given above, these schools differ as to the form in which British strategy should be applied.

THE INSULAR SCHOOL.

The Insular school of thought may be defined as one which believes in Bacon's axiom that "he that commands the sea is at greater liberty and may take as much or as little of the war as he will." Corbett has expressed a not dissimilar view in his "Principles of Maritime Strategy." This school of thought appears to advocate that our strategy should take the form of economic pressure applied through the agencies of our sea power and our great economic influence. Incidentally, a naval action may well be the prelude to or result of such strategy. In a war with allies, it is asserted, our major contribution should essentially take this form, leaving our army free to be employed as and where threats to our interests dictate.

In no case in modern history has a continental Power been overcome by action at sea alone, and since our future potential enemies, with the exception of Japan, are necessarily continental Powers, it would seem at once apparent that such a strategy will not in itself suffice unless our allies are strong enough on land to defeat the enemy's land forces. Even in the case of Japan, it is doubtful whether we could achieve the subjection of the enemy's resistance without using our army to capture bases from which our fleet could operate. In the late War, the problem of enforcing economic pressure on a continental Power entailed holding the balance between the material results to be obtained from its strict application, and its effect on neutral opinion. It is true that we did achieve our object without bringing neutrals in against us, but we were fortunately situated geographically, and we cannot count on being in such an advantageous position in a future war.

In short, modern conditions disprove Bacon's axiom. As late as 1914, many believed that if we supported our allies with our fleet and our immense financial resources, our military contribution need not be large and we might have as little of the war on land as we wished. The danger of the collapse of our allies on land, and the devastating possibilities of German submarines, aircraft, and long-range guns based on the French Channel ports soon showed that our vitals extended to the shores of the continent of Europe, and we had to expend our utmost military efforts to defend them. A future war may well demand a still further extension of our defences. In 1914-18 we had "command of the sea" in the sense to which Bacon referred, but that did not enable us to make the War one of limited liability.

THE CONTINENTAL SCHOOL.

The Continental school of thought may be defined as one which believes our strategy should be broadly similar to that which we adopted

in the late War. In addition to the exercise of economic pressure, we should aim at a development of our military power to obtain a decision on land by a military effort, acting in co-operation with our allies. This continental strategy is, of course, only applicable in a war of alliance.

The conversations entered into between ourselves and the French in 1904 resulted in a detailed plan for placing our small expeditionary force in the line with the French armies. This military plan was concluded before any general consideration of policy was begun, and though the Admiralty had assigned various functions to our fleet, and had organized the transport for shipping an expeditionary force to France, no attempt was made to combine a naval plan with a military plan; in fact, for a long time, the Admiralty had an entirely different plan. Under the influence of continental strategy we came to think of our naval and military strategy as things apart. When the time came we found ourselves committed to the military plan of co-operation with France and at once became involved in French strategy on land. This placed us in a position of great embarrassment at the very outset. We were forced to undertake a long and exhausting retreat and to consider the abandonment of our existing lines of communications and bases. Moreover, opinion in France measured the value of our support by the size of the army we sent to her assistance; consequently, for a long time, we were unable to exercise that influence on the conduct of the war to which we were entitled. Our strategy was subordinated to French strategy until the stalemate at the end of 1914 caused us to attempt to make greater use of our sea power by applying direct pressure in another theatre. The Dardanelles campaign failed largely because it was starved of troops owing to our commitments in France.

If we allow ourselves again to be swayed by the Continental school of thought, who can say but that we may not repeat our mistakes of 1914-18? Future critics may well condemn our conduct of the Great War by saying that we did not make the best use of our amphibious power and that, in fact, we voluntarily turned ourselves into a land power and only began to think of our amphibious power afterwards.

THE MARITIME SCHOOL.

The Maritime school of thought may be defined as one which believes that, in addition to economic pressure, we should correlate our naval and military strategy on a basis of sea power. In other words, that our Army should have conferred upon it the benefits which sea power can bestow.

Even in a minor war, such as the South African campaign, sea power materially effected our strategy on land, and the action of our Army

in the Peninsular War is a classic example of the skilful use of a detachment made possible by sea power and the wise choice of a political object. In the present day, no one would think of the movement of armies on land without taking into consideration the effect on them of air power; in the same way, only more so, must we consider sea power. Air power is, of course, a necessary adjunct to both land and sea power, but it in no way affects the principles which govern the correlation of British naval and military strategy.

Because our Army cannot fight until it has been transported in ships, therefore we can never hope to muster our forces as rapidly as a continental nation, whose army is already concentrated to a considerable degree and who can use railways and roads for transport. As members of an alliance we shall generally have to depend upon our allies to cover our concentration on land; but, as a rule, sea power will give us the advantage of a wide choice of landing places, and it will allow us rapidly to change a threatened line of communications.

The British Government almost invariably defers mobilization until it is quite obvious that war is unavoidable, and even when our Army is mobilized, the collecting of transports, embarkation and disembarkation in the chosen theatre of operations is a lengthy proceeding. It is not surprising, therefore, that in the last hundred years we have never been able to take the initiative and to secure freedom of action at the outset. We do, however, possess the means of overcoming this initial handicap and of wresting the initiative from the enemy by landing our expeditionary force where he may not expect it, and thus compel him to conform to our operations. Sea power is in a large measure our antidote to the slowness in preparation inherent in our political and military systems and in the whole circumstances of the Empire.

The demands which a modern war makes upon manufactures limits drastically the number of men available for the expansion of armies; in fact, the increased calls from the Navy and Air Force may make an expansion of any large army on the scale of the last War impracticable. Nevertheless, however small may be our contribution to the forces on land, we must use it in an unlimited form to achieve an unlimited and not merely a territorial object.

Before adopting a maritime strategy there are other factors which we must consider. In the first place, we must not blindly disperse our land forces because the mobility of sea power makes it easy to do so. Secondly, the requirements of a modern army for any but a very short time are far too numerous and complicated for them to be landed on an open beach. Consequently, the maintenance of a force once landed implies the early possession of a sheltered harbour and the facilities of

a base ; these must limit choice of possible landing places. Geographical conditions or adjacent neutral states may not allow of military operations other than on the main front. Finally, conditions may be such that the direct support of our expeditionary force on the main front is of paramount importance as being the only effective way of countering the enemy. Such conditions might well arise where time is vital and the enemy's flank is far more distant from us than his main front.

CONCLUSIONS.

It will be seen from the above arguments that we cannot lay down a standard form in which to express our national strategy for all future wars. We must first ask ourselves the following questions. Can we effectively exert economic pressure? Will such an action in itself be a sufficient contribution to attain our ends or do our allies need support on land? If the latter, do our own land commitments allow of this support being given? If they do, will not this support be best given in the form of maritime warfare? If conditions do not allow of military operations being undertaken other than on the main front, to what extent must we limit our continental warfare?

Whatever strategy we adopt in a future war in which the British Empire is a member of an alliance, it is of great importance that the unique character of our power should be made clear from the very first. Had we done this in the last War, it is probable that not only our first but also our subsequent contributions would have been more effective and our influence towards bringing it more rapidly to a successful conclusion would have been much greater.

By virtue of our sea power we possess great mobility, and the skilful use of combined naval, military, and air power may well be the means of restoring offensive action to the high plane it has always held in the history of the British Empire.

BRITISH RE-ARMAMENT

By MAJOR W. G. CARLTON HALL, T.D.

THERE are many who profess the belief that the maxim "Si vis pacem para bellum" was proved false by the outbreak of war in 1914. Such a belief is based on two fallacies: one, that the maxim means that by preparing for war we can ensure peace for all time; the other, that in 1914 we were in fact prepared for war. As to the first, the maxim only means that to prepare for war is, not a perfect way, but the best possible way, of preserving peace: universal and eternal peace will not be brought about unless and until the universe is wholly re-modelled. As to the second fallacy, it is true that we had, in 1914, a supreme Navy, and probably the most efficient Regular Army in the world; but the Army was so small that the flower of it was destroyed in the first few months' fighting; while, of the non-Regular divisions, which should have been ready to support it, the first took seven months and the last two-and-a-half years to reach the front. Air power, at that date, hardly came into question at all.

The favourite alternative to preparation for war, viz., universal disarmament, has been proved impracticable. So has the idea of "collective security," whether on the lines of the Geneva Protocol of 1924 or by the formation of an "international police force." Therefore it behoves us in this country to consider what degree of preparation is needed in order to give us a fair chance of securing peace for ourselves—which in reality means much the same thing as securing peace for the world, since a large-scale war in which we could remain neutral is very unlikely. Our pre-1914 preparations were proved by the event to be inadequate; and if it be objected that we cannot afford equal or greater preparations to-day the answer is twofold: that we must either afford them or perish, and that the objection is false. We have some two million unemployed—experts tell us that that state of things is not likely to be remedied for about ten years—and we have undertaken to provide them, not merely with the bare necessities of life, but also with "vocational training and recreation." It is agreed that the State can feed, clothe, and lodge a man in the armed forces of the Crown for considerably less than it would cost the man to feed, clothe, and lodge

himself equally well on the dole ; while vocational training and recreation can be provided in those forces as well as, or better than, anywhere else. Of the cost of providing material equipment for the armed forces, 85 per cent.—some say 90 per cent.—goes to wages, thus directly reducing unemployment ; the remaining 10 or 15 per cent. presumably goes to that class whose normal expenditure (i.e., employment of labour) is at present greatly curtailed by reduced incomes and high taxation. There is thus good ground for believing that the actual cost to the taxpayer of a large increase in the armed forces would be little or nothing ; but even if it were equal to the nominal increase in the Service Estimates it would still be a very small fraction of the cost—in money alone, not to mention lives—of muddling through another war which found us unprepared.

Given that we can and must increase our defences, the next question is what form that increase is to take ; and the following are suggested as the ideals to be aimed at :—

- (1) A Two-Power standard at sea ;
- (2) A One-Power standard in the air ;
- (3) A Regular Army equal in strength and in relative efficiency, allowing for changed conditions, to that of 1913 ;
- (4) A Territorial Army, comprising every fit man of military age not included in the Regular Forces and the other Reserves ; trained, organized, and equipped to take the field within one month from the order to mobilize.

Merely to set out these ideals is to invite a storm of abuse, and the criticism that they amount to a challenge to a new " race of armaments." The " race of armaments," we are constantly told, was the cause of the Great War ; whereas in fact Germany's, or Prussia's, resolve on war, with the ultimate aim of European dominion, had been unceasingly pursued for over a hundred years, i.e., from 1808 to 1914 ; and this being known to other nations led to the " race " ; which was thus not " cause " but " effect." When she believed, wrongly as the event proved, that she had gained a momentary lead in the " race " sufficient for her purpose, Germany struck ; and it is in the hope of preventing history repeating itself that these proposals are put forward.

Taking the four points singly, the suggested return to the Two-Power standard at sea is likely to be attacked from two very different angles. There are many who revile as a reactionary and a " war-monger " anyone who dares to ask for a force of cruisers sufficient to guard our food supplies ; which at present is forbidden to us by the Treaty of London. Although the Treaty of Washington was forced on us by economic considerations which no longer apply, its rescission, followed by the

building of a supreme battle fleet, is regarded by most people as outside practical politics ; yet nothing less can make us reasonably sure of peace. To guard our trade routes may avert the worst consequences of war ; but if we cannot go beyond this passive defence, and make an effective counter-attack, an enemy attacking us will do so with limited liability. Counter-attack, navally speaking, means interference with the enemy's sea-borne trade, and consequent damage to neutrals. A neutral will not submit to this if he believes his naval force sufficient, in conjunction with that of our enemy, to turn the scale against us ; and by the mere threat of war he could probably compel us to revert to the passive defensive. If, on the other hand, the combined forces of the enemy and the neutral would still be inferior to our own, the neutral would have to make the best of a bad job, and either remain neutral or come in on our side. That was the position of the United States in the last war ; it would not be so if war broke out to-morrow. To avert defeat, most people agree that we must get rid of the London Treaty ; to avert war, or at least to make it less likely, we should get rid of the Washington Treaty as well. That we can do by the end of 1936, if, but only if, we or some other Power give the prescribed two years' notice before the end of the present year ; unless this is done, the Naval Conference of 1935 will not be technically competent to abrogate the Washington Treaty. It should be superfluous to add that the demand for a Two-Power standard does not touch such vexed questions as the relative merits of large and small ships, fast and slow ships, or coal-burning and oil-burning ships ; these are matters for the technical expert ; what is asked for is a Navy able, without unduly exposing the trade routes, to meet and beat the combined battle fleets of the two next strongest Powers, whoever they may be.

On the other hand, there are those " advanced thinkers " who believe that all money spent on the Navy is sheer waste, and that our safety and salvation lie solely in air power. These would say that a Two-Power standard at sea is superfluous, and that a One-Power standard in the air is wholly inadequate. We may reply that (1) no surface ship larger than a coastal motor boat has yet been sunk or disabled by aircraft action in actual warfare ; (2) aeroplanes cannot as yet operate more than 500 miles from their base ; (3) the dropping of poison gas from aircraft is a method of warfare which has never yet been used in practice, and in the opinion of some experts never can be used on any considerable scale, because of the necessary weight of the containers ; and (4) " bacteriological warfare " is declared by those whose views are entitled to respect to be wholly impracticable, either by means of aircraft or by any other method. Even if it be true, as we are so often told, that on account of aircraft development " Great Britain is no longer an

island," that fact in itself does not make us more dependent on air power than our neighbours; therefore the One-Power standard, that is to say air power sufficient, after providing for the needs of distant parts of the Empire, to do as much damage to any single Power as the air force of that Power could do to us, is all we can reasonably hope to maintain in time of peace. In war, material expansion can be effected much more rapidly in the Royal Air Force than in the Royal Navy; therefore peace-time provision of material for the Royal Navy is the more vital. On the other hand, the Royal Air Force is likely in war to need a large and rapid expansion of personnel. Probably the best way to provide for this would be a general rule that every Cadet of the Navy and Army should be taught to fly as part of his normal training. The enforcement of such a general rule would present obvious difficulties, but it might be introduced by degrees; and if all officers of other arms were required to be attached to flying units for certain periods, and *vice versa*, many advantages would follow. A flying Reserve would be formed equal to all emergencies; co-operation between sea, land, and air forces would be vastly improved; and the existing "blind alley" system of short-term Commissions in the R.A.F. might become unnecessary.

The 1913 standard postulated for the Regular Army is a direct challenge to the "advanced thinkers." These gentlemen are fond of telling us that mechanization and similar modern developments will reduce the number of men needed; that since ten men with modern equipment are equal to, say, a hundred without it, the new Army need only be one-tenth the size of the old. This is a fallacy. If it were true, it would have applied equally to every improvement in weapons of war, from the invention of gunpowder to the present day; and armies would have steadily diminished in size, until by now they would have almost reached the vanishing point. Whereas the last war was waged by forces at once the most scientifically equipped, and the largest, that the world had ever seen. It is absurd to suppose that any nation which may be inspired by the traditional Prussian ideal, defined by a distinguished English historian as "efficiency tested by war," will be content to use scientific inventions merely to economise men; it will continue to enlist every available man, and to give him the best and most modern tools its resources will permit. And other nations, as in the past, will have no choice but to follow suit.

And this brings us to the last and most controversial of the four ideals set out above: a Territorial Army comprising the whole residue of the nation's man-power. With the exception, likely soon to disappear, of those to whom it is forbidden by the Peace Treaties, we are the only European nation which does not enforce universal military service on

either the Prussian or the Swiss model. Persistent objection to "conscription" of any kind has left us in the position of the juror who complained that he had never met eleven more obstinate men. But in the last war our insular peculiarity cost us a million lives, which is a high price to pay for a fad. Whether we choose the Prussian or the Swiss system matters comparatively little; what does matter is that when war breaks out, or is clearly imminent, every man shall know where to go, taking with him, or finding at his mobilization station, the necessary clothing, arms, and equipment, and shall be fit and able to take his place in the ranks, under competent officers and N.C.Os., ready at once to go anywhere and do anything. The Territorial Army would be the only force recruited directly by compulsion in time of peace; its existence on that basis would enable the Reserves of the Royal Navy and Royal Air Force to be screwed up to any desired degree of efficiency. And compulsory recruitment both in peace and war gives the authorities power to put every man where he is of most use—in the Navy, Army or Air Force, or any particular branch of those Services, or even back into civilian employment. It is an inherent vice of voluntary recruitment for any non-professional fighting force that square pegs will persist in forcing themselves into round holes.

If, and when, we shall have done all these things, we shall be fairly safe from attack. But having done them, we might get what the advertisements call the "extra margin of safety" by securing trustworthy allies. There are those who believe that our natural ally is the United States. But the United States refused to be our ally, even when fighting on our side; and as things are to-day no alliance is worth the concession by us of naval "parity." France and Japan, on the other hand, have been our allies and friends in the past, and there is little doubt that they would gladly be so again; but either of them may reasonably be expected to insist, expressly or tacitly, on one condition. That condition is that we shall first make ourselves strong. Only fools ally themselves with the weak.

THE INTERNATIONAL SITUATION

SOME RECENT INTERNATIONAL INCIDENTS

GREAT BRITAIN—TURKEY.

ON 14th July, a private skiff belonging to H.M.S. "Devonshire" and containing three officers of that ship was heavily fired upon by Turkish sentries on the mainland opposite the island of Samos. Surgeon Lieutenant (D) J. W. Robinson was hit and lost overboard. Lieutenant T. A. K. Maunsell received flesh wounds in the shoulder.

The Rear-Admiral commanding the First Cruiser Squadron in H.M.S. "London" proceeded immediately to Samos and was subsequently joined by the C.-in-C., Mediterranean in H.M.S. "Queen Elizabeth" with the battleship "Royal Sovereign," the cruiser "Shropshire" and the 3rd Destroyer Flotilla. After some opposition, the Turkish authorities agreed to a search being made for the body of Surgeon-Lieutenant Robinson.

Meanwhile strong representations were made by the British Ambassador at Constantinople who proceeded to Angora to protest personally to the Turkish Government at this outrage. No better excuse was forthcoming than that the Turkish soldiers had mistaken the officers for smugglers. The Turkish Government has, however, expressed deep regret at the "tragic result of a regrettable misunderstanding." They despatched a destroyer to take part in the memorial service close to the spot, and she added a wreath to those dropped by the British warships present. The Turkish authorities have also paid compensation, and the incident is considered closed.

GREAT BRITAIN—NORWAY.

The contentions of Norway regarding her rights of sovereignty over the waters of her coast to a four mile limit instead of the well recognised three miles have resulted in an increasing number of arrests of British trawlers. Strong representations have been made in the matter by the British Government, and speaking to a deputation of Hull trawler owners on the 11th July, Mr. Eden, Lord Privy Seal, said that if the

Norwegian Government did not reply satisfactorily, the British Government was fully prepared to afford naval protection to the trawlers. Mr. Eden added that in any event an early visit by a British warship to the fishing grounds would be considered.

H.M.S. "Harebell," Fishery Protection Vessel, has since proceeded to Tromsø and her commanding officer has been authorised to discuss the position with the Norwegian authorities with a view to coming to a settlement in the matter.

AUSTRIA—ITALY—GERMANY.

On 25th July a party of Austrian Nazis disguised in military uniforms raided the Chancery and arrested the leaders of the Government who were attending a Cabinet meeting. Herr Dollfuss, the Chancellor, was almost immediately shot down and left to die without medical or spiritual attention, for both of which his confreres pleaded. After some hours and finding their coup was proving abortive, the Nazis entered into negotiations with the authorities, the German Ambassador playing a somewhat obscure part as intermediary. They were at first promised safe conduct into Germany, but after they had surrendered, the murder of Dollfuss became known and the concession was rescinded.

The news caused great perturbation in the capitals of Europe, especially in Rome and Berlin. Signor Mussolini promptly declared his intention of ensuring the independence of Austria, and a force of some 40,000 Italian troops and aeroplanes was ordered to the frontier in readiness to counter any external aggression from other quarters. Germany, by whom the Nazi influences in Austria have been greatly encouraged in their activities, was very generally held to be morally responsible for the tragedy; but Herr Hitler immediately disclaimed any intention of interfering with the internal affairs of Austria and offered to send von Papen as a special emissary to Vienna. Spasmodic fighting with groups of Nazis has occurred elsewhere in Austria than Vienna, but the newly formed Government with Dr. Schuschnigg as Chancellor and Prince Starhemberg as Vice-Chancellor appears to have the situation well in hand, and there is no reason at present to suppose that it will cause a conflagration such as that which was lit from the same centre of unrest just twenty years ago.

One of the main reasons why peace is unlikely to be disturbed at present is that Germany is lacking in strength to add fuel to the small embers of trouble. Even if she has any idea of dominating Austria, the uncompromising opposition of France and Italy and their ability to back their intentions by overwhelming force of arms must deter her.

AN EASTERN PACT

IN the course of a visit to London early in July by M. Barthou, the French Foreign Minister, mention was made of an "Eastern Locarno" pact proposed by France and Soviet Russia. The object of this latest pact would be primarily to guarantee the frontiers of South-East Europe. It aims at an assurance of mutual military support between France, Russia, the Little Entente, the Balkan and Baltic Powers, Poland, and Germany.

Great Britain has again asserted her fixed determination not to be drawn into any further continental commitments; but she has given the Franco-Russian scheme her warm blessing. Unfortunately for its success, Germany has received it with profound distrust; Poland is distinctly cool towards it; while Italy, whose position is not clearly defined, is somewhat suspicious. Germany particularly resented three draft documents—an outline "Eastern Locarno" pact; a Franco-Russian agreement; and a covering convention aimed at linking up the original Western Locarno pact with the Eastern one, which were handed to the Foreign Minister by the British Ambassador in Berlin on 12th July. She fears encirclement and regards Britain's benevolence to the scheme as little less than support for French hegemony on the continent. She feels that she is being pressed to become a party to a pact which she dislikes under the threat of a Franco-Russian alliance.

The Italian press alludes to what it calls M. Barthou's "pactomania."

Moscow is pleased with the general reception afforded the proposal, and there seems to be a definite disposition in Soviet Russia to join the League of Nations. Curiously, the latter suggestion is particularly resented by Switzerland—a situation with a truly Gilbertian flavour.

THE DISARMAMENT CONFERENCE

THE General Commission met on 11th June and agreed to postpone the Disarmament Conference to "the indefinite future."

None of the nations represented at what appear to have been its obsequies would take the responsibility of pronouncing the life of the Conference to be extinct, much less of proposing the burial of the corpse; but there was a general disposition to make Germany responsible for providing the coffin. Mr. Henderson, as President, intimated that it was for the Governments concerned in the negotiations to persuade that country to return to the League, and until this had been effected the Bureau would have to wait.

On its death-bed the Conference has given birth to four committees which must have come as a veritable godsend to those officials at Geneva who saw their missions on the verge of extinction. These are :—

A Security Committee, under M. Politis, which is to conduct preliminary studies of regional security agreements "which may be negotiated outside the Conference," the General Commission itself determining on the basis of these studies "relationship, if any, of these agreements to the general convention."

A Committee on Guarantees of Execution, under M. de Bourquin. This will study how the execution of pacts and conventions can be guaranteed, and also the question of supervision.

An Air Committee, under Senor de Madariaga. This will study :—

Prohibition of bombardment of civil population from the air ;

Limitation and restriction of military aircraft ;

Regulation and publicity regarding the use of civil aircraft.

A Committee on Manufacture and Trade in Arms, under M. de Scavenius. This Committee will resume its studies of the problems of the private manufacture and sale of arms.

The General Commission has left it to the Bureau "to take the necessary steps at the proper time to insure that when the President convenes the General Commission, it will have before it as far as possible a complete draft convention."

REACTIONS.

The failure to give the Conference a formal and final burial has left a very unsatisfactory state of affairs. A clear-cut policy of British re-armament may yet be held up on the plea that negotiations with other Powers for a reduction of their arms are still proceeding. Meanwhile, practically every other nation of consequence is increasing its armaments, and the disparity of our own defences as compared with those of other countries grows daily.

The President of the United States has promised that their navy shall be built up to the full Treaty limits within three or four years, and a Special Aviation Committee of the War Department has recommended Congress to provide funds to purchase 1,000 new aeroplanes in order to bring the strength of the army's air force up to 2,320.

Japan has openly expressed her intention of demanding parity at the forthcoming Naval Conference, which must act as a still further incentive to the United States to accelerate shipbuilding. She has also been steadily increasing her air forces.

France is greatly improving her *Armée de l'Air* and continues to strengthen her frontier defences. Germany's avowed intention to

re-arm is obviously causing her much apprehension. To counter the "Deutschlands," she is building two powerful new battleships. We have only one ship, the "Hood," both as fast and as heavily armed as these French vessels. A third ship, which may be yet more powerful, is projected.

Germany's anxiety is lest she may be interfered with before she can rearm. Her potentialities as a military Air Power are dealt with in a special article in this Journal.¹ Her latest defence budget shows an increase of £17,850,000 on 1933. She has built or is building three battleships of a new type; although of only 10,000 tons, they are much too powerful for any of our 10,000-ton cruisers to stand up to them, and they are too fast for any of our battleships to catch them. Only our three battle-cruisers are a match for them. They have a great radius of action, and might do untold damage to shipping before they could be caught. A fourth ship of the class is due to be laid down this year.

Italy's powerful air force, like that of France, is now a factor to be considered seriously in the Mediterranean, lying as it does on the flank of our main route to the East. Our own air force in that sea is wholly inadequate to counter it. She has just announced her intention to lay down two 35,000-ton battleships. There can be little doubt that, as they are obviously intended to counter-balance the new French capital ships, and as they will embody the latest scientific improvements, they will be faster and probably superior in other respects to any ships we possess. Moreover, we are not free to lay down any new capital ship until the termination of the London Treaty in 1936.²

After years of disarming "to the verge of risk" as a hopeless and useless gesture to other nations, the only step which has so far been taken to make good our very serious deficiencies is the increase of the Royal Air Force, announced by Mr. Baldwin on 19th July.³ Even when this is completed in five years time, and even if there are no further increases by France, we shall still be inferior in this arm to our nearest continental neighbour. No definite action has, so far, been proposed to restore the Navy to its proper strength, or to make good the urgent needs of the Army; but that this should await the official termination of the semi-moribund Disarmament Conference seems as unreasonable as it would be dangerous.

¹ See "German Aviation To-day," p. 499.

² See also "Problems of the Next Naval Conference," p. 581.

³ For details see Air Notes, p. 631.

NAVAL CONVERSATIONS

AT the suggestion of the British Government, Naval Conversations to prepare the way for next year's Naval Conference were begun in London on 19th June. The following were present at the first meeting:—

United Kingdom.—The Prime Minister; the First Lord of the Admiralty; the Deputy Chief of the Naval Staff; and the Head of the American Department of the Foreign Office.

United States.—The U.S. Ambassador; Mr. Norman Davis, the Ambassador-at-Large; the Counsellor of the U.S. Embassy; and Admiral R. H. Leigh, U.S.N.

Italy, France, and Japan have signified their acceptance of the British invitation to take part in these Conversations, and Captain Iwashita is en route to London as a Japanese delegate. Meanwhile, the "spokesman" of the Ministry of Marine in Tokyo has declared that it is absolutely necessary to revise the Washington Treaty as well as the London Treaty. Japan's obligations in the Pacific, he said, have greatly increased in view of the birth of the State of Manchukuo, whose defence she had undertaken to safeguard. M. Barthou took advantage of his visit to London to enter into the current conversations.

After the preliminary meetings, during which it is understood British naval requirements after 1936 were mentioned, further Conversations were postponed until the representatives of the other Powers should be able to attend in the autumn.

THE LITTLE ENTENTE

ACCORDING to the foreign Press, the conversations of the Chiefs of the General Staffs of the three partners of the Little Entente, which took place at the annual Conference of that Alliance recently held at Bucharest, have not been productive of any very cordial agreement.

Circumstances have altered, and the conclusion of various pacts and alliances in Eastern Europe may be said to have somewhat undermined the solidarity of the Little Entente. In particular the conclusion of the pact of non-aggression between the Soviet Union and Poland, combined with the agreement made by the Soviet Union with Rumania, have affected the relations between Czecho-Slovakia and Rumania. The latter state feels itself no longer so much threatened by the Russian danger, knowing full well that the Soviet Union is not a little anxious over the possible loss of its influence in Manchukuo and the Far East in consequence of the recent Japanese expansion. The same cause is at the bottom of the less friendly atmosphere prevailing in the relations of

Poland and Czecho-Slovakia. But the main source of disagreement existing between Rumania and Czecho-Slovakia has arisen out of the armament question. By long standing agreement Rumania had been acquiring her entire armaments from the Skoda factories and other Czech undertakings. Last year, after prolonged complaints as to the fulfilment of contracts placed in Czecho-Slovakia, there arose a considerable outcry in Bucharest against one Seletzki, the resident agent of the Skoda factory; an important trial which resulted showed up the Czechoslovak firm in a most unfavourable light. In addition, it has long been pointed out that the single railway line linking Rumania and Czecho-Slovakia runs close to Polish and Hungarian territory, a fact that renders its use doubtful in the event of war. The consequence is that a Rumanian military mission is now visiting France with a view to signing new armament contracts with French firms. French help is also to be engaged for the setting up of armament works in Rumania; in fact, a Ministry of Munitions has been called into being at Bucharest for the purpose of creating such an industry.

On the other hand, the recent signature of the Balkan Pact has eased the anxieties of Rumania and of Yugoslavia with regard to any attack from the side of Bulgaria. This fact, taken in conjunction with the recent treaty for mutual assistance, now signed by the three states of the Little Entente, does guarantee to Yugoslavia a certain degree of assistance from Rumania in the event of a conflict with Italy; similarly Czecho-Slovakia would receive some kind of material help from the other two states in case of war with Germany.

Nevertheless, it is evident that the conditions which made for unity in the Little Entente are no longer so compelling as they were in 1918. The recent conference is reported as having dispersed in a depressed frame of mind, whilst the usual outburst of enthusiasm noticeable in the East European Press was this year considerably subdued.

THE NEJD-YEMEN WAR

INFORMATION concerning the brief campaign that was carried on by King Ibn Saud of Nejd against the Imam of Yemen early this summer is still scanty; in particular technical details of the fighting, such as it was, are strangely lacking. Only the bare outlines of events can, therefore, be given.

It would appear that during the last month of March the Imam's attitude towards the State of Nejd became somewhat provocative. The small state of Asir, which had in the past acted as a buffer between Nejd and Yemen, had recently been absorbed by Ibn Saud and he had come

to regard it as part of his dominions. The Imam of Yemen, however, seems to have adhered to the attitude that Asir was a species of No Man's Land and he allowed the Yemeni to raid that region. He also harboured the Idrissi who had previously ruled Asir. Ibn Saud expostulated with the Imam; but to little effect. The Imam seems to have under-estimated the military preparedness and value of the Nejd forces, while making light of Ibn Saud's threats. The inevitable outcome was an invasion of Yemen by the Nejd forces. The Imam was caught unready and the Yemeni resistance quickly collapsed.

By the end of March the Nejd army was on the move. It invaded the Yemen in three columns: the first, under Emir Feisal, advanced along the coast moving on Haradh and Hodeida; the second, under Ibn Saud's son, moved for Nejran; the third headed for Saadah via Baqim, in the Beni Juma.

The Imam attempted to delay the enemy's advance by pleading for an interview between his son, Abdullah al Wazir, and Ibn Saud. The latter refused the request, insisting on the acceptance of the conditions which he had already communicated to the Imam. By 9th April, Haradh was taken by the Nejd forces, as well as all the forts but one round Baqim. Yemeni reinforcements moving towards Haradh were defeated between Medi and Loheya, whereupon Ibn Saud's troops invested Medi. In addition, Saudi troops from the direction of Abu Arish defeated a force commanded by Abdul Wahab Idrissi (of Asir), while tribesmen loyal to Ibn Saud co-operated by an advance into the fringes of Abadil and Beni Malik.

The Yemeni resistance then came to an end, and by 15th April the Imam was asking for an armistice and stating that he had ordered his troops to evacuate the Nejran. To this request Ibn Saud replied that he would grant the armistice and receive the Imam's representatives when the following conditions had been fulfilled:—

- (a) Evacuation of the Nejran by Yemeni forces;
- (b) No further connection to take place between the Yemen and the tribes of Al Jibal;
- (c) The Idrissi (of Asir) to be handed over to Ibn Saud who would guarantee their accommodation and support.

Meanwhile, on 2nd May, the Nejd forces occupied the Yemeni seaport of Hodeida, and were accorded an excellent reception after the evacuation of the town by the Yemeni forces. In view of possible danger to British subjects—some 300, mostly Indians—H.M.S. "Penzance" arrived at that port with a view to putting ashore a landing party; but this proved unnecessary. On 8th May the R.A.F. from Aden made a flight over

the town. ; two small Italian warships also arrived. On that day, too, H.M.S. "Enterprise" relieved H.M.S. "Penzance," while H.M.S. "Hastings" also arrived.

Emir Feisal seems to have acted at Hodeida with vigour and moderation. After establishing cordial relations with the British and Italians, he prepared to advance on Sanaa, the Imam's capital, where the Yemeni were rumoured to be preparing a desperate resistance. But by 13th May an armistice had been arranged on Ibn Saud's terms. These were :-

- (1) No fortification on frontiers of occupied provinces for twenty years ;
- (2) Surrender of all hostages and of the Idrissi tribe ;
- (3) Surrender of the provinces of Tihama and of Nejran ;
- (4) Reparations equal to the cost of the war ;
- (5) Guarantee of safety of Yemeni who had joined the Nejd forces.

The Imam was so slow in complying with these terms that, on 24th May, Ibn Saud threatened him with a resumption of hostilities. Thereupon the Idrissi, who, as the ex-rulers of Asir, were the cause of much of the trouble, were arrested by the Imam and surrendered. Peace appears to have been made on 29th May. H.M.S. "Enterprise" left Hodeida on 19th May and has been followed by the remaining foreign ships.

CORRESPONDENCE

[Correspondence is invited on subjects which have been dealt with in the JOURNAL, or which are of general interest to the Services. Correspondents are requested to put their views as concisely as possible, but publication of letters will be dependent on the space available in each number of the JOURNAL.—EDITOR].

EXPLOITS IN THE DESERT

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—Without wishing to belittle in any way the achievements of T. E. Lawrence, it may be of interest to readers of Captain Liddell Hart's recent book¹ to consider the somewhat parallel feats of the young German, Wassmus, who was German Consul at Bushire in South Persia in 1914. After the declaration of war he instantly vanished into the desert with the avowed purpose of fighting the British single-handed. Very soon he emerged and became so redoubtable and ubiquitous a factor in the war along the Persian-Mesopotamian frontier that his whereabouts were frequently the subject of a separate paragraph in British Army orders, while his name would figure in large type on British maps showing the daily situation.

Having turned Mahommedan he obtained the support of the priestly class and the confidence of the Persians. Later on he also became the son-in-law of a powerful mountain chief. With these advantages he was able to come and go with astounding rapidity; he raided railways, destroyed roads, bridges, oil tanks, wells and W/T stations in the course of a remarkable series of exploits. He was even able to supply Turkish and German headquarters with valuable information. Once he was actually surrounded and captured by British mounted troops, but a fortnight later was again leading his band in the mountain passes, having carried off a substantial sum of cash from his captors. In the end he virtually controlled the entire mountainous district between Persia and Mesopotamia. A price of £50,000, it is understood, was put on his head by the British, but in vain; his movements were so rapid and the devotion of some of his immediate followers such that he escaped out of every trap. But finally some Persian chiefs, attracted by the reward, were not so staunch, and after the fall of Baghdad, a movement among certain of them led to his betrayal. He was thus caught and interned in India. On his release, in 1919, the German Government refused to reinstate him in the Consular service. He then divorced his Mahommedan wife and called his legitimate spouse from Germany to his side, and ended his days in rather miserable circumstances as a small agricultural proprietor near Bushire.

Another similar character, though with no such catalogue of exploits to his credit, is the Venezuelan, de Nogales, whose books describing his attempts to cut the British pipe-lines at El Arish, were recently reviewed in the JOURNAL.

May, 1934.

INTELLIGENCE.

¹ Reviewed in the JOURNAL for May, 1934, p. 442.

THE SAM BROWNE BELT

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—In the discussion following the lecture on "Uniforms of the British Army," published in the JOURNAL for February, 1934, (page 122) Sir James Douglas suggests that the Sam Browne belt was invented somewhere about 1884-85. As a matter of fact it originated with Sir Sam Browne himself much earlier, namely during the fifteen years previous to 1884, while he raised and was commanding the 2nd Punjab Cavalry. In an article published in *The Globe* in 1918 a writer then stated that Sam Browne "designed and caused the regimental saddler to fashion the sword belt upon which his posthumous fame rests."

If it could be shown that the accursed belt can be assigned to any other person than my unhappy great-grand-uncle, I should be grateful, for it has eclipsed all the achievements of an otherwise honourable career. Sir Sam won the V.C. at Sirpura, raised the 2nd Punjab Cavalry, and prepared the scheme for the advance on Kabul in 1879. His sartorial adventure, however, was unfortunate, for his fame rests entirely upon the miserable belt and its braces which are now the rage from Peru to China. Major Stacke suggests in the body of his excellent lecture that "The shade of that gallant frontier warrior must be grimly amused at some of the innumerable people who wear his belt to-day." If the family tradition concerning Great-Uncle Sam's sense of humour is to be trusted, I am afraid the old boy's language must be simply frightful.

C. M. ENRIQUEZ,
Major

MOGOK, BURMA.
25th April, 1934.



GENERAL SERVICE NOTES

INTER-SERVICE PRESENTATION.

The Admiralty approved the presentation of the ship's bell of H.M.S. "Euryalus" to the 1st Battalion, The Lancashire Fusiliers, as a permanent memorial of the association of the Royal Navy with the Battalion at their historic landing at Helles on 25th April, 1915.

The presentation was made on 11th July at Goojerat Barracks, Colchester, by Admiral Sir Rudolf Burmester, K.B.E., C.B., C.M.G., who was in command of the "Euryalus" at the landing, and was received by Lieutenant-Colonel R. M. Watson, D.S.O., Commanding the 1st Battalion.

FRANCE

CREDITS FOR NATIONAL DEFENCE.

A *Projet de Loi* published recently asks authority for further credits in connection with National Defence. It points out that various laws (chiefly those of January, 1930) authorized a programme of expenditure amounting to 3,442 million francs on the defensive organization and 400 million francs on the anti-aircraft defence of the territory. Owing, however, to a rise in the prices of materials since the passing of the laws, the credits voted for defence have actually been exceeded by 800 million francs.

The programme of fortifications envisaged in 1929 is now practically completed, but it has recently been determined to carry out a further extension towards the North Sea of the defences which at present terminate in the neighbourhood of Longuyon (about 35 miles North-West of Metz). A further credit of 1,175 million francs is, therefore, required for expenditure during 1934 and 1935. As shown above, however, it would appear that only 375 million francs (£3,000,000 at par) will, in fact, be available for new work, and this will not go very far if further fortifications on the same scale as those already existing are contemplated.

In addition, credits of 825 million francs (£6,600,000 at par) are demanded for the Navy for construction of fuel oil depots, coast defences and the naval air service, and credits of 980 million francs (£7,840,000 at par) for the Air Army to be expended this year, mainly on new material and mobilization stores. In connection with the last item it should be noted that a previous unofficial report stated that the Air Army was to get three times the above amount, spread over the years 1934-1936 inclusive.

ITALY

ANTI-AERIAL PROTECTION OF TERRITORY AND OF THE CIVILIAN POPULATION.

A Royal Decree was promulgated on 5th March, 1934, approving "regulations for the anti-aerial protection of the national territory and of the civil population."

The regulations contain ten articles, of which the following are the most important :—

Article 1 defines the possible measures as being either :—

- Means of defence, i.e., those means which are capable of direct employment against aircraft. These, with the exception of defence by aircraft, are known collectively as "Difesa Contro-Aerea Territoriale" or D.I.C.A.T.
- Means of protection, i.e., those means applied direct to the objectives to be protected with the purpose of limiting the possibility of the attack or rendering its effects less serious. These means are known collectively as "Protezione Anti-Aerea" or P.A.A.

Both D.I.C.A.T. and P.A.A. are under the orders of the General Staff at the War Ministry.

Article 2.—The principal measures of the P.A.A. are defined as :—

- Alarm signals for the population ;
- Darkening of objectives ;
- Camouflaging of objectives ;
- Total or partial evacuation of the inhabitants of large cities and special localities ;
- A.A. technique in building, the construction of shelters, and the protection of pipes ;
- Medical and anti-gas protection ;
- Protection against fire ;
- Protection of national artistic and scientific property.

Some of these measures will be enforced in time of peace, others only on mobilization.

The Ministry of War will issue necessary instructions through a Central Committee.

Article 3.—The objectives, to be subjected to the above measures of P.A.A., will be :—

- Towns which are especially liable to attack on account of their large population, of their position along the frontiers, or because important military and industrial establishments are situated therein ;
- Industrial establishments and depots of important material (mechanical transport, aircraft, explosives, liquid fuel, etc.), warehouses, grain-stores, refrigerating plants, markets, etc., whether within cities or isolated ;
- Railway lines and stations, harbours and airports ;
- Special works : such as large bridges, docks, electric generating plants, hydraulic plants ; also river banks, frontier roads, etc.

Article 4.—The organization of anti-aerial protection, in time of peace, is allocated to the Ministry of War (General Staff), which acts through a "Central Interministerial Committee" and "Provincial and Communal Committees," all of which are permanent. In time of war these committees will continue to function, the Central Committee remaining under the orders of the Ministry of War and the others passing to the orders of local military and naval authorities. All measures of P.A.A. must be in full running order on the outbreak of hostilities.

Articles 5, 6, 7, and 8 deal with the composition and duties of the Central Interministerial and the Provincial Committees.

Article 9 lays down that the military or naval authorities, which in time of peace direct D.I.C.A.T. exercises, are responsible for the co-ordination of duties between the latter and Provincial Committees for P.A.A.

Article 10 remarks that the measures governing anti-aerial protection will impose sacrifices and discomfort upon the civilian population, which must be prepared to endure them with courage and perfect discipline. In order to attain this, Provincial Committees will promote, amongst all classes and in accordance with the instructions of the Central Committee, an efficient propaganda, with practical exercises, lectures, etc., with the object of impressing on the population the necessity of the measures to be employed, in the interest of single individuals and of the entire nation.

It will thus be seen that not only is anti-aerial protection itself being highly organized in Italy, but that steps are being taken to bring all walks of life into the chain of responsibility, and to educate the Italian people as to its necessity.

INCREASE IN NAVY AND AIR FORCE.

An official decree was published on the 2nd August authorising a special appropriation of 1,200,000,000 lire for the Ministry of Aviation. Another decree officially authorises the construction of the two 35,000 ton battleships. (See Navy Notes, page 620).

NAVY NOTES

GREAT BRITAIN

FIRST AND PRINCIPAL NAVAL A.D.C.

The King has been pleased to approve the appointment of Admiral Sir John D. Kelly, G.C.V.O., K.C.B., to be First and Principal Naval Aide-de-Camp to His Majesty, in succession to Admiral Sir Reginald Y. Tyrwhitt, Bt., G.C.B., D.S.O., D.C.L., to date 31st July, 1934.

FLAG APPOINTMENTS.

EAST INDIES.—The King has been pleased to approve the appointment of Rear-Admiral Frank F. Rose, C.B., D.S.O., to be Commander-in-Chief, East Indies, in succession to Vice-Admiral Martin E. Dunbar-Nasmith, V.C., C.B., to date 26th October, 1934, and to assume command on 12th December, 1934.

FIRST BATTLE SQUADRON.—Vice-Admiral C. M. Forbes, C.B., D.S.O., succeeded Admiral Sir Roger R. C. Backhouse, K.C.B., C.M.G., in command of the First Battle Squadron, and Second-in-Command, Mediterranean Fleet, on 21st May. Vice-Admiral Forbes hoisted his flag in H.M.S. "Resolution."

FOURTH SEA LORD.—The King has been pleased to approve the appointment of Rear-Admiral Percy L. H. Noble, C.B., C.V.O., to be a Lord Commissioner of the Admiralty and Chief of Supplies and Transport, in succession to Rear-Admiral Geoffrey Blake, C.B., D.S.O., to date 15th February, 1935. Rear-Admiral Noble will be appointed to the "President," additional, for duty inside Admiralty, to date 18th January, 1935.

SECOND CRUISER SQUADRON.—Rear-Admiral Sidney J. Meyrick, C.B., is to be Rear-Admiral Commanding the Second Cruiser Squadron, in succession to Rear-Admiral P. L. H. Noble, C.B., C.V.O., to date 14th December, 1934.

ROYAL INDIAN MARINE.—Rear-Admiral Arthur E. F. Bedford, C.B., is to be lent to the Government of India as Flag Officer Commanding and Director, Royal Indian Marine, in succession to Vice-Admiral Sir Humphrey T. Walwyn, K.C.S.I., C.B., D.S.O., to date 5th October, and to assume command on 16th November, 1934.

REAR-ADMIRAL (SUBMARINES).—Rear-Admiral Cecil P. Talbot, C.B., D.S.O., is to be Rear-Admiral (Submarines) in succession to Rear-Admiral Noel F. Laurence, C.B., D.S.O., to date 10th December, 1934.

DIRECTOR OF NAVAL EQUIPMENT.—Rear-Admiral St. Aubyn B. Wake is to be Director of Naval Equipment, in succession to Rear-Admiral C. P. Talbot, to date 10th December, 1934.

H.M. YACHTS.—Rear-Admiral Dudley B. N. North, C.S.I., C.M.G., C.V.O., to be Rear-Admiral Commanding H.M. Yachts, in succession to Admiral the Hon. Sir Herbert Meade-Fetherstonhaugh, to date 15th December, 1934.

FLAG LIST CHANGES.

Rear-Admiral C. V. Robinson was placed on the retired list at his own request, to date 31st May, 1934, and from the same date Captain W. G. C. Maxwell, C.M.G., A.D.C., was promoted to Rear-Admiral. Rear-Admiral Maxwell was

placed on the retired list, 1st June. Captain C. N. Reyne, A.D.C., was promoted to Rear-Admiral, 1st June, and placed on the retired list, 2nd June. Captain (Commodore, 2nd class) R. C. Davenport, A.D.C., was promoted to Rear-Admiral, to date 2nd June.

Admiral of the Fleet Sir Osmond Brock, G.C.B., K.C.M.G., K.C.V.O., D.C.L., has been placed on the retired list, to date 31st July.

Admiral Sir Reginald Tyrwhitt, G.C.B., D.S.O., D.C.L., has been promoted to Admiral of the Fleet; Vice-Admiral the Hon. Sir Herbert Meade-Fetherstonhaugh, K.C.V.O., C.C., D.S.O., has been promoted to Admiral; Rear-Admiral F. F. Rose, C.B., D.S.O., has been promoted to Vice-Admiral; Captain R. S. MacFarlan has been promoted to Rear-Admiral and placed on the retired list; Captain S. D. Tillard has been promoted to Rear-Admiral and placed on the retired list; Captain C. B. Prickett has been promoted to Rear-Admiral and placed on the retired list; Captain C. G. Brodie has been promoted to Rear-Admiral and placed on the retired list; Captain T. H. Binney, D.S.O., has been promoted to Rear-Admiral.

PERSONNEL.

REGULATIONS FOR SALUTES.—Amendments have been made to Articles 153 and 154, King's Regulations and Admiralty Instructions, in regard to salutes. The effect of the amendments to Article 153 is that in future all officers and ratings, whether ashore or on board, are to salute, if wearing head-dress, at "Colours," or when a National Anthem is played, unless they are fallen in, when they will be called to attention, the officer or rating in charge alone saluting. Article 154 has been amended so as to remove any impression that a different procedure is required of ratings ashore according to whether they are standing about or walking about. All ratings ashore, whether singly or in parties, should salute officers on all occasions unless they are in an organized party under the orders of an officer or rating.

MEDICAL BRANCH CHANGES.—Changes were approved with effect from 1st May in the conditions of entry and service for officers of the R.N. Medical Service, following the recommendations made in 1933 by the Fisher Committee on the Medical Branches of the Defence Forces. All entries will be on a short service basis for three years, to be extended to five years at Admiralty discretion. After three years officers may leave with a gratuity of £400, and after five years with a gratuity of £1,000. Transfer to the permanent list will be at Admiralty discretion on completion of five years' short service. The age of retirement has been increased for Surgeon Commanders from 50 to 55, and for Surgeon Captains from 55 to 57. The number of Surgeon Captains will be increased from 20 to 33. Some increases have been made in the rates of active service pay of existing officers, and also in the gratuities to which they would be entitled if retiring after limited periods of service.

RONALD MEGAW PRIZE.—The Ronald Megaw Memorial Prize for 1933-34, offered to the Sub-Lieutenant who obtains the highest place in the various examinations prescribed for officers qualifying for the rank of Lieutenant, has been awarded to Sub-Lieutenant G. C. I. St. B. S. Watkins, R.N., of H.M.S. "Oswald."

FLAG OFFICERS' COURSES.—Instead of the £2 a day allowance in addition to half-pay which was formerly payable to flag officers and officers of the engineering branch of corresponding rank, while undergoing courses, an Order in Council of 13th July provides that these officers are to receive the full pay of their rank and the appropriate rates of provision allowance, with lodging allowance when accom-

modation is not provided. Attendance at these courses is no longer regarded as voluntary, but as an ordinary naval duty.

NEW CONSTRUCTION.

THE 1933 PROGRAMME.—It was announced on 1st May that, subject to the settlement of certain points of detail, the Admiralty had decided to entrust the construction of the two "Minotaur" class cruisers of the 1933 programme to Messrs. John Brown and Co., Ltd., of Clydebank, and Vickers-Armstrongs, Ltd., of Barrow. The hull of the Vickers-Armstrongs vessel is to be built on the Tyne, where the former Armstrong yard at Walker is being reopened, and the machinery at Barrow.

The keel-plate of the "Penelope" was laid on 30th May at Belfast by Messrs. Harland and Wolff.

The five sloops in the 1933 programme were laid down as follows :—"Deptford," at Chatham Dockyard, 30th April, 1934; "Londonderry," at Devonport Dockyard, 11th June; "Speedwell," by W. Hamilton and Co., Port Glasgow, June; "Bittern," by John Brown and Co., Clydebank, 9th March, 1934; and "Kingfisher," by the Fairfield Shipbuilding Co., Govan, 1st June, 1934.

THE 1932 PROGRAMME.—The flotilla leader "Faulknor" was launched by Messrs. Yarrow and Co., Scotstoun, on 12th June. The following are the dates of launch of the destroyers of this programme :—"Fearless," 12th May; "Fame," "Firedrake" and "Forester," 28th June; "Foresight," 29th June; "Fury" and "Fortune," 29th August; "Foxhound," October.

The first cruiser of this programme, the "Sydney," originally known as the "Phaeton," will be launched by Messrs. Swan Hunter and Wigham Richardson on 22nd September.

The destroyer depot-ship "Woolwich" will be launched by the Fairfield Shipbuilding and Engineering Co., Ltd., on 20th September.

Launching dates for the four sloops of the 1932 programme were as follows :—"Lowestoft," 11th April, and "Wellington," 29th May, both at Devonport Dockyard; "Harrier," 17th April, and "Hussar," June, both by Messrs. Thornycroft and Co., Southampton.

THE 1931 PROGRAMME.—The last of the three cruisers of the 1931 programme, the "Amphion," was launched at Portsmouth Dockyard on 27th July. The other two ships, "Ajax" and "Arethusa," are expected to be completed in April, 1935. The "Ajax" is to relieve the "York" in South American waters.

The following are the completion dates for the destroyers of the 1931 programme, which are to join the 5th Flotilla, Home Fleet :—flotilla leader "Exmouth," 31st October; destroyers "Escapade," 30th August; "Electra," 13th September; "Echo," 27th September; "Esk," 26th September; "Escort" October; "Eclipse," November; "Encounter," 2nd November.

Dates of completion for the submarines of the 1931 programme are :—"Severn," September, to join 1st Flotilla; "Sealion," 15th November, to join 6th Flotilla; "Shark," 31st December, to join 6th Flotilla.

The four sloops of the 1931 programme have now been completed. The "Halcyon," commissioned at Portsmouth on 17th April for service in the 1st Minesweeping Flotilla. The "Skipjack," commissioned for service on 8th May, also for the 1st Flotilla. The "Grimsby" was completed in May for service in

China in place of the "Cornflower," The "Leith," commissioned for service in July, to replace the "Veronica" in New Zealand.

THE COST OF SHIPS.—Replying to Sir R. Gower in the House of Commons on 6th July, Sir B. Eyres Monsell gave the following figures of approximate annual cost for pay, victualling and clothing, repairs and other maintenance services of the latest types of battleship, battle-cruiser, destroyer and submarine :—

Battleship "Rodney," £303,000; battle-cruiser "Hood," £274,000; cruiser "Neptune," £133,000; destroyer "Eclipse," £41,000; submarine "Shark," £23,200. These figures show the total direct expenditure, i.e., exclusive of annual accruing liability for pensions.

EXERCISES AND CRUISES.

HOME FLEET EXERCISE.—An exercise was carried out from 5th to 7th June by ships of the Home Fleet on their way to Scapa via the West Coast of Scotland. Owing to an accumulated reserve of fuel, it was possible to allow higher speeds than usual, viz., 25 knots for the Second Cruiser Squadron; and 21 to 25 knots for the destroyers. The underlying strategical plan was that a Red Fleet of battleships and cruisers, with attendant destroyers, were attempting to reach the Orkneys, and were intercepted and harried by a Blue Fleet of one battle cruiser, destroyers and submarines, supported by aircraft. Aircraft from H.M.S. "Courageous" played the role of land-based aircraft; flying boats from Pembroke also took part. The Red Fleet was under Admiral Sir William Boyle, in the "Nelson"; the Blue under Vice-Admiral W. M. James, in the "Hood." Blue, inferior in battle strength, had the co-operation of submarines and aircraft, denied to Red.

Hostilities began, officially, at 10 p.m. on 5th June, but the Blue Commander-in-Chief appears to have withheld his attacks until the Red Fleet had reached narrow waters where they could be more easily located. Aircraft attacks were made in the early evening of 6th June, and later Blue submarines and eventually destroyers engaged.

HOME FLEET CRUISE.—During the summer cruise, a contingent of the Home Fleet, as in previous years, visited Northern European waters. Over twenty places in nine different countries were visited. They included three German ports, Stettin, visited by the "Leander"; Kiel, by the "Achilles"; and Swinemunde, by the 4th Destroyer Division. The "Nelson" and "Crescent" visited Reykjavik, Iceland. The "Rodney" and "Malaya" went to places in Norway. Other countries visited were Sweden, Denmark, Lithuania, Esthonia, Latvia and Finland.

A number of British coast resorts were visited by ships of the Fleet, and from 19th to 24th July the vessels reassembled at Torbay for the sailing regatta.

MEDITERRANEAN CRUISE.—The Mediterranean Fleet, under Admiral Sir William Fisher, left Malta on 27th June for its first summer cruise, which was to last until 15th August. The places visited included Suda Bay, Gulf of Mirabella, Syra, Platea, Argostoli, Corfu, and other towns in the Aegean. The ships were to reassemble off Navarino from 6th to 13th August.

AMERICA STATION.—Summer programmes of the Eighth Cruiser Squadron began in the latter half of June, after the ships had been concentrated at Bermuda for some weeks. The flagship "Norfolk" left on 21st June for the Panama Canal and Esquimalt, and was to be off the British Columbian coast until early September. A similar cruise is being made by the "Danae." The "Dragon" was ordered to cruise in Newfoundland waters, and to Quebec and Montreal in August. Of the

South America Division, the "Exeter" left on 29th June for the Brazilian coast and to cruise down to the Falklands by mid-November; the "York" left a few days earlier for the Panama Canal and the coasts of Peru and Chile.

CHINA STATION.—The "Suffolk" proceeded to Yokohama, arriving on 3rd June, for the funeral of the late Admiral Togo, at which the Royal Navy was represented by the Commander-in-Chief in China, Admiral Sir Frederic Dreyer. The "Suffolk" returned to Wei-Hai-Wei on 12th June, joining there the "Berwick," "Cornwall" and "Cumberland." A cruise in Japanese waters was made during June by the sloop "Bridgewater," Commander J. S. M. Mackenzie-Grieve, visits being paid to Nagasaki, Miyajima, Kobe, and Kagoshima.

AFRICA STATION CONFERENCE.—H.M.S. "Hawkins," flagship of Vice-Admiral Sir Martin Dunbar-Nasmith, V.C., in the East Indies, arrived at Durban on 2nd July, and met there the Africa Squadron under Vice-Admiral E. R. G. R. Evans, consisting of the "Dorsetshire" (flagship), "Carlisle," "Milford" and "Daffodil." In the naval conversations which took place, South African ministers were consulted. The Vice-Admirals, with a detachment of over 100 officers and men, visited Johannesburg and Pretoria.

MISCELLANEOUS.

PIRACY IN CHINA.—The s.s. "Shuntien," owned by the China Navigation Company, was seized by pirates when between Taku and Chefoo on Sunday, 17th June. The pirates looted the ship and escaped in junks, carrying off five British subjects, a Japanese and twenty Chinese. The five British kidnapped included Lieutenant J. D. Luce, R.N., H.M.S. "Osiris," Lieutenant P. L. Field, R.N., H.M.S. "Oswald," another passenger and two officers of the "Shuntien." As soon as the piracy became known the aircraft carrier "Eagle" proceeded to the vicinity, and on the 20th her aircraft made a search. Fire was opened on them from junks in a creek half-a-mile from the sea, and promptly returned. Aircraft were sent to drop a warning bomb and messages in Chinese threatening force if the prisoners were not surrendered. This had the desired effect, and by 6.30 p.m. the same evening the British captives were safe on board H.M.S. "Whitshed."

EXPEDITION TO THE ANTARCTIC.—Lieutenant R. E. D. Ryder, R.N., will be in command of the "Penola," the ship purchased for the British Graham Land Expedition, which is due to leave this country early in September. The Expedition will be away until about May, 1937. A description of the objects of the undertaking, by Admiral Sir William Goodenough, G.C.B., M.V.O., appeared in *The Times* on 7th June, 1934. Lieutenant (E) H. M. Millett, R.N., has also been selected for service with the Expedition.

"CANTERBURY" BELL CATHEDRAL PRESENTATION.—On 9th June, the ship's bell from H.M.S. "Canterbury" was presented to Canterbury Cathedral. At three o'clock, Admiral Percy Royds, who commanded the cruiser during the War, struck six bells. Henceforth, at 11 a.m. every day, a retired or serving seafarer will strike six bells in the Cathedral in memory of those whose lives are or have been spent afloat. The First Lord, Sir Bolton Eyres Monsell, formally presented the bell to the Cathedral at a special service for seafarers.

THE FLEET AIR ARM

H.M.S. "Furious" has been detached from the Home Fleet for service with the Mediterranean Fleet until about October. No. 801 (Fleet Fighter) Squadron and No. 822 (Fleet Spotter Reconnaissance) Squadron from Netheravon embarked in

her before she left England on 2nd June. No. 812 (Fleet Torpedo Bomber) Squadron was embarked at Malta.

MEDICAL EXAMINATIONS.—Examinations conducted by R.A.F. Medical Boards at Malta or Singapore as to the physical fitness of officers for training as pilots in the Fleet Air Arm will in future be treated as final and not as provisional only. Where, at other places, a provisional examination is carried out by naval medical officers, special attention is to be paid to R.A.F. requirements.

FOREIGN NAVIES

BRAZIL

CONTRACTS FOR DESTROYERS.—Contracts were placed with Messrs. Thornycroft in June for the construction of nine destroyers of 600 tons.

NEW TRAINING SHIP.—On 11th June, the anniversary of the Battle of Riachuelo, the training ship "Almirante Saldanha" was formally handed over by Commander Sir Charles Craven on behalf of Vickers-Armstrongs, Ltd., to Captain Sylvio de Noronha, Head of the Brazilian Commission, who will command her.

COLOMBIA

BRITISH PERSONNEL.—A further 100 officers and ratings on the retired and pensioned lists of the Royal Navy left Tilbury on 12th May to serve in the two destroyers purchased by the Colombian Government. - The services of these officers and men were applied for by the Colombian authorities, and the Admiralty gave permission for them to accept employment, but the service upon which they have engaged has nothing to do with the British Government, nor is Great Britain concerned in the terms of the contracts of service entered into.

FRANCE

1934 NAVAL PROGRAMME.—The Chamber on 30th June adopted the Bill authorising the laying down before the end of the year of the 1934 quota of the naval programme. It includes provision for the second battleship of 26,500 tons, one destroyer, and two submarines.

Outlining the French plans, M. Pietri, the Minister of Marine, told the Chamber that France would not attempt to counter the 35,000-ton battleships planned by Italy "because of a French pledge to Britain to limit the tonnage of capital ships," and because they did not wish to engage in a tonnage race on the eve of a naval conference. The Senate passed the Bill on 5th July.

THIRD BATTLESHIP PROJECTED.—M. Pietri, replying to the debate in the Senate on the shipbuilding Bill, said that before the London Conference took place they would lay down a third battleship. He hoped it would not have to be a 35,000-ton ship, but he could not say.

TARGET SHIP.—It is reported that the old battleship "Voltaire" is to be fitted up as a target ship, on similar lines to the British "Centurion" and the German "Zaehringen."

VISIT TO CANADA.—The destroyer "Vauquelin," Captain Kratz, has been chosen to represent the French Navy at the celebration of the fourth centenary of Jacques Cartier in Canada. She was to leave Brest on 7th August, and will visit several North American ports during her cruise.

GERMANY

THIRD BATTLESHIP LAUNCHED.—The third of the new German battleships of 10,000 tons was launched at Wilhelmshaven on 30th June and named the "Admiral Graf Spee," after the victor of Coronel.

FOURTH BATTLESHIP PROJECTED.—A fourth battleship is to be begun later, in the year.

VISIT TO ENGLAND.—For the first time since the War, German warships paid a visit to an English naval port from 11th to 15th July, when the cruisers "Königsberg" and "Leipzig," the former flying the flag of Rear-Admiral Hans Kolbe, came to Portsmouth. The "Königsberg" was commanded by Captain Von Schrader and the "Leipzig" by Captain Hormel. Officers and men were entertained by the naval and civic authorities at Portsmouth. On 12th July, the Rear-Admiral and Captains paid the first official visit since the War to the Admiralty, apart from routine visits by the Naval Attachés. They were received by the First Lord and First Sea Lord. The German Ambassador lunched on board the "Königsberg" on 13th July, when the guests included Admiral Sir John Kelly, Commander-in-Chief, by whose permission the "Leipzig" saluted the Ambassador on leaving with seventeen guns; normally salutes are only fired at Spithead and not alongside the Dockyard.

GREECE

NEW CONSTRUCTION.—The two destroyers which, as announced in the last issue of the JOURNAL, are to be built for Greece, form part of a programme covering a term of years which the Minister of Marine, Admiral Hadjikyriakos, has prepared for submission to the Chamber. Two destroyers will be provided for in each of the sections "A," "B" and "D," and four in section "C." One light cruiser is proposed in section "B," and submarines and other vessels in sections "B" and "D." The programme also includes provision for the bringing up to date of Salamis arsenal and the reorganisation of coastal defences.

ITALY

NEW BATTLESHIPS.—On 11th June, it was announced officially that the Italian Government had decided to lay the keels of two battleships of 35,000 tons, to be built at Trieste and Genoa respectively. The official communique ascribed this decision to the situation arrived at in consequence of the failure of the Disarmament Conference. The Fascist Government deem it necessary "to give the Italian Navy that organic composition which appears indispensable in view of the lack of accord about qualitative limitation."

Under the Washington Treaty of 1922, Italy had the right to lay down one battleship up to the maximum tonnage of 35,000 in 1927, another in 1929, and others in 1931, 1932 and 1933 respectively. She did not avail herself of this right, but concentrated instead upon the building of cruisers and torpedo craft. Under the London Treaty, the right to avail herself of her Washington battleship tonnage is specially reserved.

VISIT TO DURAZZO.—The 1st Squadron of the Italian Adriatic Fleet paid an unexpected visit to Durazzo for a week from 23rd June. On 1st July, the Albanian Press Bureau announced that in spite of the semi-official statement broadcast from Rome to the contrary, the visit to Durazzo had not been arranged with the consent of the Albanian Government, which had been given no previous intimation of the Fleet's movements.

JAPAN

DEATH OF ADMIRAL TOGO.—Fleet Admiral Marquis Togo died on 30th May at the age of 86. Among the tributes to his memory paid all over the world were several from Great Britain, where he received his early nautical training in the training ship "Worcester" in 1873. At the funeral on 5th June, the Royal Navy was represented by Admiral Sir Frederic Dreyer, Commander-in-Chief on the China Station, who proceeded to Yokohama in his flagship the "Suffolk."

On the day of the funeral, the First Lord, Sir Bolton Eyres Monsell, broadcast a message to Japan, in response to a request from that country, in which he referred to Togo's early association with England and his affection for it in later life. His character, said the First Lord, exemplified to the world the typical virtues of the spirit of Old Japan. He had the same spirit that was in our own sea hero Nelson, and a fragment of Nelson's "Victory" was one of his cherished possessions.

MODERNIZATION OF CAPITAL SHIPS.—For several years Japan's capital ships have been taken in hand in turn to undergo modernization. The first were the battle cruisers "Haruna," "Kirishima," and "Kongo"; then followed the battleships "Fuso" and "Yamashiro," and after them the "Mutsu" and "Nagato." The two last are not yet completed. There remain the "Hyuga" and "Ise."

It is understood that the principal items of work include increased under-water and deck protection, increased elevation to guns, new machinery and boilers in certain ships, catapults, new A.A. armaments, and new control systems.

The battle cruisers' speed is said to have been reduced from $27\frac{1}{2}$ to 26 knots, and they are now officially classified as battleships.

NEW CONSTRUCTION.—The fourth ship of the 8,500-ton "Mogami" class of cruisers, and the last of the 1931 programme, has been laid down. The submarines "I.73" and "Ro.34" have also been commenced.

The "Mogami" herself and the destroyer "Wakaba" have been launched.

The submarine depot-ship "Taigei" and the submarine chasers Nos. 1 and 2 are completed.

NEW CABINET.—In the Cabinet formally installed by the Emperor on 8th July, the portfolio of Prime Minister was accepted by Admiral Keisuke Okada. Admiral Osumi became Minister of Marine.

FATAL ACCIDENT.—On 30th June, four men were killed, four injured, and two were missing as the result of a collision during thick fog of the destroyers "Inazuma" and "Miyuki" South of Quelpart Island, during exercises. The after part of the "Miyuki" was cut off and sank, and the forepart of the "Inazuma" was smashed.

PORTUGAL

NEW SLOOP.—The "Afonso de Albuquerque," the first of two sloops which are being built by Messrs. Hawthorn Leslie and Co., was launched at Hebburn-on-Tyne on 28th May. The vessel has been specially designed for service in Portuguese Colonial waters. The armament, supplied by Vickers-Armstrongs, Ltd., includes four 4.7-in. guns, two of which are superimposed. The A.A. armament consists of two 3-in. guns and four 2-pounder pom-poms.

NEW SUBMARINES.—On 30th May, the double launch took place at Barrow of the submarines "Golfinho" and "Espadarte." The "Delfim," the first of the three submarines building at Barrow, was launched on 1st May. The vessels will be of 870 tons, 2,300 horse-power, 16 knots speed, and armed with one 4-in. gun and six 21-in. torpedo tubes.

SWEDEN

NAVAL POLICY.—The naval budget proposed by the Defence Department for 1934-35 amounts to 34.9 million Kr. Admiral Lybeck, Chief of the Naval Staff, has advocated a replacement programme for the coast defence ships and the removal seawards of the coast fortresses, especially those defending Stockholm and Karlskrona. He pointed out that the "Oscar II" is thirty years old, and the "Sverige," "Drottning Victoria," and "Gustav V"—the latest defence vessels—are nearing the age limit.

TRAINING SHIP CRUISE.—The Swedish training ship "af Chapman," a fully-rigged ship, arrived at Portsmouth on 23rd May to repair damage suffered in crossing the North Sea in heavy weather.

SUBMARINE VISIT.—The Second Submarine Division of the Swedish Navy made a four-day visit to Aberdeen from 12th July. The vessels concerned were the "Illern," "Bavern" and "Uttern."

UNITED STATES

REVIEW AT NEW YORK.—President Roosevelt on 31st May reviewed the United States Fleet off the Ambrose lightship, at the entrance to New York harbour. The occasion was described as the greatest peace-time pageant in American naval history. The President was on board the new cruiser "Indianapolis," and eighty-six vessels steamed past him, including ten battleships, fifteen cruisers (apart from two employed at the reviewing base), three aircraft carriers, forty-eight destroyers, a hospital ship, submarine and destroyer tenders, repair ships, oilers and store-ships. The Fleet was under the command of Admiral David F. Sellers, in the "Pennsylvania."

MODERNIZATION.—The battleship "Idaho" is due to complete modernization on 1st November next.

NEW CRUISERS.—The 10,000-ton cruiser "Astoria" will complete her trials and "shake down" cruise this year, and join the Scouting Force in February, 1935. The "Minneapolis" has also commissioned for trials, and will join the Scouting Force about the same time as her sister ship.

Work on the "Tuscaloosa" has been delayed by a strike in the New York Shipbuilding Co. It was effectively settled by an ultimatum from the Navy Department that the ship would be transferred to Philadelphia, if agreement was not reached.

NEW AIRCRAFT CARRIER.—The new aircraft carrier "Ranger" was commissioned on 4th June, and on 22nd June Rear-Admiral E. J. King, Chief of the Bureau of Aeronautics, made the first regular landing on the ship off Lynnhaven Roads, Va.

NEW DESTROYERS.—The first destroyer to be commissioned for the U.S. Navy since the last War programme vessels were finished in August, 1922, is the "Farragut," which was accepted from the Bethlehem Corporation on 18th June.

The destroyer "Aylwin" was launched at the Philadelphia Navy Yard on 10th July.

PROHIBITION IN THE FLEET.—In spite of the repeal of Prohibition in the United States, the order that ships of the U.S. Navy are to be "dry," issued over twenty years ago when Secretary Daniels was in office, is still to remain in force; but alcoholic liquors are now permitted in shore establishments.

ARMY NOTES

HOME

THE ARMY COUNCIL.

Two changes will take place in the composition of the Army Council early in 1935, in addition to the recent change of Master-General of the Ordnance.

Lieutenant-General H. H. S. Knox, C.B., D.S.O., will succeed General Sir Cecil F. Romer, K.C.B., K.B.E., C.M.G., on 1st March, 1935, as Adjutant-General.

Major-General Sir Reginald May, K.B.E., C.B., C.M.G., D.S.O., will succeed Lieutenant-General Sir Felix Ready, K.C.B., C.S.I., C.M.G., D.S.O., on 2nd February, 1935, as Quartermaster-General.

Lieutenant-General Sir Hugh J. Elles, K.C.M.G., K.C.V.O., C.B., D.S.O., succeeded Lieutenant-General Sir Ronald Charles, K.C.B., C.M.G., D.S.O., as Master-General of the Ordnance on 5th May last.

APPOINTMENTS AND PROMOTIONS.

H.M. the King has been pleased to approve the following appointments:—General the Hon. Sir J. Francis Gathorne-Hardy, K.C.B., C.M.G., D.S.O., to be Aide-de-Camp General to the King, in succession to General Sir Charles H. Harington, G.C.B., G.B.E., D.S.O., D.C.L., Colonel, The King's (Liverpool) Regiment, and 4th/15th Punjab Regiment, Indian Army, Colonel Commandant, Army Educational Corps.

General Sir Cyril J. Deverell, K.C.B., K.B.E., Aide-de-Camp General to the King, to be Colonel of The West Yorkshire Regiment (The Prince of Wales's Own), in succession to the late Major-General Sir William Fry, K.C.V.O., C.B.

Major-General H. D. de Pree, C.B., C.M.G., D.S.O., to be Colonel Commandant, Royal Artillery.

Major-General G. A. J. Leslie, C.B., C.M.G., to be Colonel Commandant, Royal Engineers, in succession to the late Major-General Sir Arthur R. F. Dorward, K.C.B., D.S.O.

Major-General W. S. Anthony, C.B., C.M.G., to be Colonel Commandant, Royal Army Veterinary Corps, in succession to Major-General Sir J. Moore, K.C.M.G., C.B., F.R.C.V.S.

Colonel the Most Hon. the Marquess of Londonderry, K.G., M.V.O., to be Honorary Colonel, 28th London Regiment (The Artists' Rifles).

The Rt. Hon. The Marquess of Reading, Lord Warden of the Cinque Ports, to be Honorary Colonel of the 5th (Cinque Ports) Battalion (Territorial), The Royal Sussex Regiment, in succession to the Rt. Hon. The Earl Beauchamp.

Major-General H. de C. Martelli, C.B., D.S.O., to be Lieutenant-Governor and Commanding the Troops, Jersey District, 28th May, 1934.

Major-General W. P. H. Hill, C.M.G., D.S.O., has succeeded Major-General H. de C. Martelli, C.B., D.S.O., as Major-General i/c Administration, Southern Command.

Major-General G. W. Howard, C.B., C.M.G., D.S.O., from Major-General i/c Administration, Eastern Command, to be Commander, 5th Division.

Major-General P. R. C. Commings, C.M.G., D.S.O., to be Commander, 56th (1st London) Division, Territorial Army, in succession to Major-General Sir Winston Dugan, K.C.M.G., C.B., D.S.O.

Major-General D. J. C. K. Bernard, C.M.G., D.S.O., to be Director of Recruiting and Organization, The War Office, with effect from August next, in succession to Major-General B. D. Fisher, C.B., C.M.G., D.S.O., appointed Commandant, Royal Military College, Sandhurst.

The following promotions have been made :—

Major-General Sir Hugh J. Elles, K.C.M.G., K.C.V.O., C.B., D.S.O., to be Lieutenant-General; Major-General J. A. Hartigan, C.B., C.M.G., D.S.O., M.B. (late R.A.M.C.), to be Lieutenant-General; Major-General W. W. Pitt-Taylor, C.B., C.M.G., D.S.O., to be Lieutenant-General; Major-General R. F. Foster, C.B., C.M.G., D.S.O. (Royal Marines), to be Lieutenant-General.

Colonel R. F. Hezlet, C.B.E., D.S.O.; Colonel T. S. Coates, O.B.E., M.B. (late R.A.M.C.); Colonel A. A. Goschen, D.S.O.; Colonel B. N. Sergison-Brooke, C.M.G., D.S.O.; Colonel O. Ievers, D.S.O., M.B. (late R.A.M.C.); Colonel G. C. Williams, C.M.G., D.S.O.; Colonel (temporary Brigadier) S. J. P. Scobell, C.M.G., D.S.O.; to be Major-Generals.

Colonel G. Mathew, C.B. (Royal Marines), to be Major-General.

Colonel E. M. Steward, O.B.E. (Indian Army); Colonel E. de Burgh, C.B., D.S.O., O.B.E. (Indian Army); to be Major-Generals.

NEW FORMATIONS AND RE-ORGANIZATION.

H.M. the King has approved of the following :—

ROYAL ENGINEERS—FORMATION OF ANTI-AIRCRAFT SEARCHLIGHT COMPANIES.

—The 16th (Anti-Aircraft Searchlight) Company, Royal Engineers, with effect from 1st September, 1934, and the 22nd (Anti-Aircraft Searchlight) Company, Royal Engineers, with effect from 1st October, 1934.

ROYAL TANK CORPS—FORMATION OF NEW BATTALION.—An additional battalion of the Royal Tank Corps, to be designated :—" 1st (Light) Battalion, Royal Tank Corps."

ROYAL ARMY SERVICE CORPS—ORGANIZATION.—The further re-organization of certain mechanical transport units at home to form companies on a standard organization has been approved.

The organization and establishment of numbers 10, 11, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 27, 28, and 38 Companies, and numbers 34, 36 and 37 Companies (Mobile Repair Units) have been modified to conform to the new organization.

The formation of nine new standard transport companies to be numbered 43, 44, 45, 46, 47, 48, 49, 50 and 51 has also been approved.

The formation of Number 52 (Mechanical Transport) Company, Royal Army Service Corps, for service in Malaya, has been approved.

REGIMENTAL DISTINCTIONS.

ROYAL REGIMENT OF ARTILLERY.—In order to perpetuate distinguished services rendered by units of the Royal Artillery which have at various times been reduced, H.M. the King has approved that the undermentioned battery shall be considered as re-formed from the reduced unit named below and shall carry on its traditions.

<i>Present designation</i>	<i>Date of formation</i>	<i>Reduced unit to be re-formed</i>	<i>Date of formation</i>	<i>Date of reduction</i>
7th Field Battery	1848	9th Company, 3rd Battalion	1759	1819

THE LOYAL REGIMENT.—MOTTO.—H.M. the King has approved of The Loyal Regiment (North Lancashire) being permitted to adopt the motto "Loyauté m'oblige."

REGIMENTAL COLOURS, CENTRE BADGES.—Centre badges for the Regimental Colours of the undermentioned regiments have been approved as follows :—

The Loyal Regiment.—The Red Rose charged with the Royal Crest.

The York and Lancaster Regiment.—The Union Rose.

The Durham Light Infantry.—Within a bugle horn stringed the letters D.L.I.

The Lincolnshire Regiment.—Within two clarions, thereon a sphinx, the plinth inscribed "Egypt," the Roman numeral X.

The Duke of Cornwall's Light Infantry.—The castle and lion as shown in the Great Seal of the Duchy of Cornwall, pendent therefrom a bugle horn stringed, the whole ensigned with the coronet of H.R.H. The Duke of Cornwall.

The King's Shropshire Light Infantry.—Within a bugle horn stringed a leopard's face.

The centre badges of The King's Own Yorkshire Light Infantry, The Wiltshire Regiment and The Gordon Highlanders have been amended as follows :—

The King's Own Yorkshire Light Infantry.—Within a French hunting horn a pomme thereon the White Rose.

The Wiltshire Regiment.—A cross patee charged in the centre with a roundle thereon the cypher and coronet of the late Duke of Edinburgh.

The Gordon Highlanders.—The crest of the Marquess of Huntly within a wreath of ivy, with the motto "Bydand."

ARMY TRAINING.

In view of the uncertainty of the water supply, it has been decided to abandon the proposal to carry out, this summer, Army training in an area in Cambridgeshire, Essex and Hertfordshire. In consequence of this decision, the Exercises arranged for the 4th Division, 1st Cavalry Brigade, and 4th Infantry Brigade (Guards), will not be carried out, and alternative arrangements are being made. The Brigades of the 4th Division will carry out brigade training in the vicinity of their stations—the 10th and 12th Infantry Brigades at Shorncliffe, and the 11th Infantry Brigade at Colchester; the 4th Infantry Brigade will also train at Colchester. The 1st Cavalry Brigade will train near Marlborough in the area in North Wiltshire specified in the second schedule of the Order in Council of 29th June.

WORK FOR DISCHARGED SOLDIERS.—During the six months ending 31st March, 1934, 967 soldiers completed courses of instruction at the Army Vocational Training Centres. Of these, immediate employment was found for 729, and 160 students who had left in previous months were also placed in employment.

TERRITORIAL ARMY**STRENGTH.**

The latest returns show that during the month of April, 1934, 3,424 recruits were finally approved for the Territorial Army. This is an increase of 477 recruits compared with the number approved in March last, but is 917 recruits less than in April, 1933.

The total strength of the Territorial Army (other ranks) on 1st May, 1934, was 126,008; this is 675 more than on 1st April, 1934, and there is a net increase of 1,359 compared with the strength on 1st May, 1933.

The number of recruits obtained in each Command was as follows:—Eastern Command, 447; London District, 250; Northern Command, 674; Scottish Command, 725; Southern Command, 418; and Western Command, 910.

The strengths of the 14 Infantry Divisions on 1st May, 1934, were as follow (the corresponding figures on 1st April being shown in brackets):—51st (Highland) Division, 8,689 (8,638); 50th (Northumbrian) Division, 8,368 (8,290); 42nd (East Lancashire) Division, 8,116 (8,006); 53rd (Welsh) Division, 7,916 (7,892); 46th (North Midland) Division, 7,816 (7,882); 43rd (Wessex) Division, 7,696 (7,669); 49th (West Riding) Division, 7,450 (7,477); 55th (West Lancashire) Division, 7,279 (7,119); 52nd (Lowland) Division, 7,226 (7,191); 44th (Home Counties) Division, 7,130 (7,073); 48th (South Midland) Division, 7,036 (7,021); 54th (East Anglian) Division, 6,793 (6,779); 56th (1st London) Division, 5,768 (5,768); 47th (2nd London) Division, 5,300 (5,315).

The number of officers of the Territorial Army on 1st May, 1934, was 7,042; this is an increase of 21 during the month, and the number is 1,044 short of establishment.

DOMINION FORCES.

REGIMENTAL ALLIANCES.—H.M. the King has approved of the following Alliances:—

Le Régiment de Chateauguay, Non-Permanent Active Militia of Canada, being allied to The North Staffordshire Regiment (The Prince of Wales's).

The Queen's Rangers, 1st American Regiment, of the Non-Permanent Active Militia of Canada, to the 2nd/35th Battalion, Australian Military Forces.

INDIAN ARMY

Major-General G. Fleming, C.B.E., D.S.O., has been appointed Commander, Madras District, Southern Command, India, with effect from 19th October next, in succession to Major-General C. R. Newman, C.B., C.M.G., D.S.O.

NOTICE.

The Commandant, Royal Military College, Sandhurst, wishes to call attention to the unfinished state of the memorial to Sandhurst cadets who fell in the Great War, and to appeal for funds to complete it.

The form which it was decided to give to the memorial was the enlargement of the College Chapel, together with the recording upon marble panels by regiments of the names of the fallen officers as the chief feature of the interior decoration. But the walls were already so covered that the inscription of the names of the 4,000 cadets who fell in the Great War would have been impossible. It was a

question, therefore, of either building a new memorial chapel or enlarging the old one, and the latter alternative was chosen in order that there should be no break with the associations which the old chapel holds for so many generations of Army officers. The method of enlargement, adopted after much consideration, was to place the new chapel across the original building, which would then become the centre of the whole structure, changing the orientation from south-east to north-east.

Towards the £50,000 for which an appeal was made in 1916 the subscriptions received have amounted to £33,750, but of this nearly £19,000 was earmarked for memorial panels, etc., and in spite of a large contribution from College funds it has never been possible to complete the superstructure. The result is that this noble memorial remains unfinished, and not only is the beauty of the design seriously obscured, but the acoustic properties of the chapel are affected, and, further, a large number of regimental memorials cannot be erected in suitable positions.

The estimated cost of completing the fabric of the west end is £14,000, towards which there is in hand a sum of about £4,000, leaving £10,000 to be provided.

Field-Marshal H.R.H. the Duke of Connaught is entirely in sympathy with this appeal, which he trusts may meet with a generous response. Subscriptions may be sent to the Commandant or to the Secretary of the Memorial Fund at the Royal Military College, Sandhurst, Camberley.

FOREIGN

BELGIUM

VOLUNTEER FRONTIER DEFENCE UNITS.—A very satisfactory response has been forthcoming to the appeal for recruits to the frontier defence units, and 8,151 volunteers have come forward from whom the required 2,200 will be selected. Work on new barracks to house these units when formed has been commenced.

DURATION OF STAFF APPOINTMENTS.—An order has recently been issued that no officer may in future remain absent from the troops for more than a maximum of six years at a time. This is a great change from the present practice, whereby officers remain practically permanently on the staff, though obliged to return for a minimum period of two years to their regiments to qualify for promotion to Major and Colonel.

FRANCE

ABOLITION OF TWO MILITARY REGIONS.—In July, 1933, M. Daladier, then Minister of War, introduced a *projet* for the reduction of two Military Regions, in the interests of economy. This measure was never ratified, but has now been revived by Marshal Pétain in a decree authorizing the abolition of the 10th (H.Q. Rennes) and the 12th (H.Q. Limoges) Regions. As a result, the 12th will be absorbed by the 9th Region, and the 10th is to be split up between the 4th and 11th. At the same time various minor adjustments are to be made in the boundaries of other Regions.

This reorganization, which will take several months to complete, will result in the reduction of two regional (corps) staffs and various administrative economies,

though the saving is very largely offset by the creation of the two fortified areas (Metz and Lauter) on the north-eastern frontier with separate G.Os.C. and staffs.

DEFENCE OF THE FRANCO-ITALIAN FRONTIER.—By a decree dated 20th February, 1934, the principle of having specially organized units for the defence of frontier fortifications, already adopted on the Franco-German frontier, has now been extended to the Franco-Italian frontier. Four line regiments, one from each of the two brigades in the two Alpine divisions (the 27th and 29th), will have an additional battalion—in one case two battalions—added to them for the special purpose of garrisoning in peace and defending in war the fixed defences guarding the passes over the Alps between France and Italy. The additional battalions will be composed of a varying number of companies (two, four or five) according to the number and importance of the defensive works each is to hold.

INSTRUCTION OF OFFICERS IN MOTOR DRIVING.—A recent decree announces that in view of the growth of mechanization it is essential that all officers should be able to drive and repair motor vehicles and also act as instructors, should the necessity arise; at the present time only officers of tank, mechanized artillery and M.T. units are permitted to drive government motor vehicles. Corps commanders will be responsible for seeing that these instructions are carried out, and in cases where no facilities exist officers will be attached to motorized units as necessary. A certificate will be issued to those reaching a certain standard of proficiency, which will enable them to drive government vehicles on duty.

REORGANIZATION OF THE ARMY.—A recent decree announces a further reorganization of units in France to take effect during the period September–November this year:—

(a) The 8th Algerian and the 14th and 15th Moroccan native infantry regiments, each of three strong battalions, at present stationed in Morocco, will be transferred to France and formed into a new North African *groupement*. As three additional Moroccan native infantry battalions have already been sent to France, these moves will complete the transference of 12 battalions as foreshadowed in this year's budget. The new *groupement* will in effect form an additional division (at present without any artillery) with headquarters at Chateauroux, and the three regiments will be scattered over the 9th, 12th and 17th Regions in the West and South-West.

The strength of each of these native regiments is 66 officers and 2,326 other ranks, including 9 native officers and 1,995 native other ranks.

(b) The Indo-Chinese-Madagascan *groupement* is also to be reorganized. At present it comprises two white colonial machine-gun regiments (41st and 51st), each of two battalions and a *de mi-brigade* of one Indo-Chinese and one Madagascan machine-gun battalion, with the 12th Regiment of Colonial Artillery. It has now been decided to disband the 51st Regiment, while the 41st Regiment is also to be withdrawn from the *groupement*, a decision as to its disposal being given later.

The *groupement* therefore, will be reduced to only two battalions and a regiment of artillery.

ORGANIZATION OF A.A. ARTILLERY REGIMENTS.—The law of July, 1932, laid down that the organization of the A.A. Artillery (*Défense contre Aéronefs*) was to consist of six regiments comprising 26 brigades of 54 batteries, of which 45 were to be guns and 9 searchlights.

By the formation of a new regiment (404th) and the addition of one brigade to the 403rd Regiment, the present organization of A.A. Artillery is now as follows:—

401st Regiment—							
6 brigades of guns	H.Q.	Paris.					
402nd Regiment—							
3 brigades of guns	} H.Q.	Metz.					
2 brigades, searchlights							
403rd Regiment—							
6 brigades of guns	H.Q.	Toul.					
404th Regiment—							
2 brigades of guns	} H.Q.	Tours.					
2 brigades, searchlights							
405th Regiment—							
3 brigades of guns	H.Q.	Sathonay.					

The present total of five regiments comprising 20 brigades of guns and 4 brigades of searchlights is, therefore, still short of the authorized establishment.

CAVALRY MECHANIZATION.—As a result of the experiments carried out in 1933 with various types of motorized units, it is announced that the 4th Cavalry Division will be completely mechanized with effect from 1st May, and will have the following organization :—

4th Cavalry Division	H.Q.	Reims.
7th Brigade	H.Q.	Reims.
18th <i>Dragons</i>		Reims.
4th <i>Groupe</i> Armoured Cars		Reims.
8th Brigade	H.Q.	Verdun.
8th <i>Cuirassiers</i>		Verdun.
4th Battalion <i>Dragons Portes</i>		Verdun.
74th Regiment Horse Artillery		Verdun.
Attached—		
1st <i>Groupement de Cavalerie</i>	H.Q.	Reims.
11th <i>Chasseurs à Cheval</i>		Vesoul.
9th <i>Dragons</i>		Epernay.
30th <i>Dragons</i>		Metz.

ITALY

ADOPTION OF A BLACK UNDRESS UNIFORM FOR SPECIAL OCCASIONS.—A new black uniform has been adopted for all regular officers for wear at official and social functions in the evening. It consists of a double-breasted black coat with a high collar, overalls with a stripe, and boots similar to the British "Wellington." The colour of the collar and stripe varies according to the regiment, corps or service. A Government grant of 550 lire, to meet the initial cost, is being made to each officer. The expenditure involved, which totals 9,658,000 lire, will be included in a supplementary estimate.

JAPAN

PATRIOTIC CONTRIBUTIONS TO THE ARMY.—Reference has been made to the influx of voluntary contributions towards the provision of war material. These contributions began in the early part of 1932, and are now showing a definite slowing down; one or two societies have already closed their subscription lists. According to the latest official returns, the sum of 12,211,073 yen has been received by the Ministry of War during the past three years towards "National

Defence," and the sum of 5,435,000 yen has also been received for the assistance of officers and men, and their families. In addition to these monetary contributions, 3,720,000 bags containing gifts for officers and men at the front have been received.

Patriotic contributions amounting to 659,752 yen have been received by Army Headquarters, Korea.

On 11th February a representative ceremony of "patriotic" weapons was held in the presence of Lieutenant-General Uyemura, Director of the Ordnance Bureau, representing the Minister for War, and other distinguished guests at the Yoyogi Parade Ground, Tokyo. After a religious service conducted by a Shinto priest, the weapons were registered in the name of the Japanese Army by General Uyemura.

SUPPLY OF JAPANESE OFFICERS FOR THE MANCHUKUO ARMY.—A batch of 400 officer candidates from Japan arrived at Mukden on 10th January. These individuals were attached to training units at Mukden, Kirin and Tsitsihar, and on 10th March entered the Officers' School at Mukden for a further period of from four to seven months' training, at the end of which they will enter the Manchukuo Army as officers. Candidates, on appointment to the Manchukuo Army, receive promotion by at least one step, e.g., a Japanese lieutenant becomes a captain in the Manchukuo Army, while a Japanese superior private becomes a second lieutenant.

The batch of 400 candidates mentioned above is the second of its kind, and it is proposed to send from Japan a third batch of 400 in the autumn of 1934.

SPAIN

OCCUPATION OF IFNI.—Various reports have from time to time been current that Spain intended to occupy the Ifni *enclave* on the South-West Moroccan seaboard (which she has never done since it was allotted to her in 1860). Such action is long overdue, since dissident tribes have for many years used the territory as a starting point for raids into French territory and as a safe "home" when pursued.

It is now reported that a force of nearly 1,000 native troops and some aircraft from Morocco is in course of landing in the territory, though the actual "occupation" appears to have been already effected by a Spanish political officer (Colonel Capaz) and two private soldiers.

Owing to the forbidding nature of the coast and the total lack of any harbour, a landing from the sea is always hazardous and difficult, and the most practical method for transporting and supplying any troops will probably be by air.

In this connection Colonel Capaz is reported to have secured the co-operation of the natives for the preparation of landing grounds.

A Government decree has just appointed Colonel Capaz to be Governor of Ifni, and authorized him to create provisionally a Native Guard for the territory.

AIR NOTES

ROYAL AIR FORCE

EXPANSION POLICY.

On 19th July a statement of the Government's policy of expansion of the Royal Air Force was read in both Houses. Lord Londonderry—Secretary of State for Air, and Mr. Baldwin—Lord President of the Council, respectively informed the Lords and Commons of the new programme.

The Government's adherence to international disarmament as the ultimate aim was reaffirmed, but it was noted that no success had yet attended the British lead in reductions, while "the many symptoms of unrest in Europe and elsewhere . . . have made it impossible to keep our armaments at the present low level."

The whole question of Imperial Defence and the part to be played by the three Services has been under review for some months. So far as the Royal Air Force is concerned the need is for further development, which has time and again been postponed. But the many factors which have influenced the Government's decision are still fluctuating, consequently "our defensive position will have to be kept constantly under review, and we reserve the right to modify or adjust the programme in the light of new factors that may arise."

Subject to this *caveat*, a programme has been decided upon which will cover the present and future years and whereby the Royal Air Force will be increased by 41 new squadrons, including those already announced in the 1934 programme. (See these Notes in last quarter's JOURNAL).

Of these 41 squadrons 33 will be allotted to Home Defence, raising the existing 42 squadrons at home to a total of 75 squadrons. The remaining squadrons are for the Fleet Air Arm or for service abroad.

PRACTICAL EXPANSION.

The practical steps to be taken in order to give effect to the Government's policy of expansion will involve the construction of some 460 new aircraft, bringing the total of British "first-line" aeroplanes up to 1,300 in four years time. This will be about 350 less than the present total of the French air force and 200 less than the Russian.

The provision of new aerodromes and accommodation, and the training of the extra personnel are other factors which limit the rate of expansion. In regard to the former a certain amount has been done in the way of surveying sites, and additional accommodation could be found by making full use of that which already exists and building temporary quarters. The real crux of the problem is the time taken to train new pilots and aircraftsmen. There is ample accommodation at Cranwell and Halton for more entries, but the full course of instruction at both places takes about three years; older entries, such as officers who obtain University commissions and those who come in on the short-service system complete their training period in about a year.

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Patriotic contributions amounting to 659,752 yen have been received by Army Headquarters, Korea.

On 11th February a representative ceremony of "patriotic" weapons was held in the presence of Lieutenant-General Uyemura, Director of the Ordnance Bureau, representing the Minister for War, and other distinguished guests at the Yoyogi Parade Ground, Tokyo. After a religious service conducted by a Shinto priest, the weapons were registered in the name of the Japanese Army by General Uyemura.

SUPPLY OF JAPANESE OFFICERS FOR THE MANCHUKUO ARMY.—A batch of 400 officer candidates from Japan arrived at Mukden on 10th January. These individuals were attached to training units at Mukden, Kirin and Tsitsihar, and on 10th March entered the Officers' School at Mukden for a further period of from four to seven months' training, at the end of which they will enter the Manchukuo Army as officers. Candidates, on appointment to the Manchukuo Army, receive promotion by at least one step, e.g., a Japanese lieutenant becomes a captain in the Manchukuo Army, while a Japanese superior private becomes a second lieutenant.

The batch of 400 candidates mentioned above is the second of its kind, and it is proposed to send from Japan a third batch of 400 in the autumn of 1934.

SPAIN

OCCUPATION OF IFNI.—Various reports have from time to time been current that Spain intended to occupy the Ifni *enclave* on the South-West Moroccan seaboard (which she has never done since it was allotted to her in 1860). Such action is long overdue, since dissident tribes have for many years used the territory as a starting point for raids into French territory and as a safe "home" when pursued.

It is now reported that a force of nearly 1,000 native troops and some aircraft from Morocco is in course of landing in the territory, though the actual "occupation" appears to have been already effected by a Spanish political officer (Colonel Capaz) and two private soldiers.

Owing to the forbidding nature of the coast and the total lack of any harbour, a landing from the sea is always hazardous and difficult, and the most practical method for transporting and supplying any troops will probably be by air.

In this connection Colonel Capaz is reported to have secured the co-operation of the natives for the preparation of landing grounds.

A Government decree has just appointed Colonel Capaz to be Governor of Ifni, and authorized him to create provisionally a Native Guard for the territory.

AIR NOTES

ROYAL AIR FORCE

EXPANSION POLICY.

On 19th July a statement of the Government's policy of expansion of the Royal Air Force was read in both Houses. Lord Londonderry—Secretary of State for Air, and Mr. Baldwin—Lord President of the Council, respectively informed the Lords and Commons of the new programme.

The Government's adherence to international disarmament as the ultimate aim was reaffirmed, but it was noted that no success had yet attended the British lead in reductions, while "the many symptoms of unrest in Europe and elsewhere . . . have made it impossible to keep our armaments at the present low level."

The whole question of Imperial Defence and the part to be played by the three Services has been under review for some months. So far as the Royal Air Force is concerned the need is for further development, which has time and again been postponed. But the many factors which have influenced the Government's decision are still fluctuating, consequently "our defensive position will have to be kept constantly under review, and we reserve the right to modify or adjust the programme in the light of new factors that may arise.

Subject to this *caveat*, a programme has been decided upon which will cover the present and future years and whereby the Royal Air Force will be increased by 41 new squadrons, including those already announced in the 1934 programme. (See these Notes in last quarter's JOURNAL).

Of these 41 squadrons 33 will be allotted to Home Defence, raising the existing 42 squadrons at home to a total of 75 squadrons. The remaining squadrons are for the Fleet Air Arm or for service abroad.

PRACTICAL EXPANSION.

The practical steps to be taken in order to give effect to the Government's policy of expansion will involve the construction of some 460 new aircraft, bringing the total of British "first-line" aeroplanes up to 1,300 in four years time. This will be about 350 less than the present total of the French air force and 200 less than the Russian.

The provision of new aerodromes and accommodation, and the training of the extra personnel are other factors which limit the rate of expansion. In regard to the former a certain amount has been done in the way of surveying sites, and additional accommodation could be found by making full use of that which already exists and building temporary quarters. The real crux of the problem is the time taken to train new pilots and aircraftsmen. There is ample accommodation at Cranwell and Halton for more entries, but the full course of instruction at both places takes about three years; older entries, such as officers who obtain University commissions and those who come in on the short-service system complete their training period in about a year.

HONOURS AND AWARDS.

The following were published in the *London Gazette*, dated 4th June, 1934 (King's Birthday Honours):—

K.B.E. (Military).—Air Marshal R. H. Clark-Hall, C.M.G., D.S.O.

C.B. (Civil).—Wing Commander E. J. Hodsoll.

C.B.E. (Military).—Air Commodore J. T. Babington, D.S.O.; Group Captain E. C. Clements, O.B.E., M.R.C.S., L.R.C.P.

O.B.E. (Military).—Wing Commanders A. Shekleton, D.S.O., and F. P. Don. Squadron Leaders R. Jope-Slade, D.S.C.; R. P. M. Whitham, M.C.; W. F. Dickson, D.S.O., A.F.C.

Air Force Cross.—Squadron Leader F. J. Fogarty, D.F.C.; Flight Lieutenant G. L. Carter.

PROMOTIONS.

AIR VICE-MARSHAL TO BE AIR MARSHAL.—Sir Edgar R. Ludlow-Hewitt, K.C.B., C.M.G., D.S.O., M.C.

GROUP CAPTAINS TO BE AIR COMMODORES.—O. T. Boyd, O.B.E., M.C., A.F.C.; A. W. Tedder; B. E. Sutton, D.S.O., O.B.E., M.C.

WING COMMANDERS TO BE GROUP CAPTAINS.—J. McCrae, M.B.E.; G. W. Murlis-Green, D.S.O., M.C.; W. V. Strugnell, M.C.; K. C. Buss, O.B.E.; F. Sowrey, D.S.O., M.C., A.F.C.; F. G. D. Hards, D.S.C., D.F.C.; W. A. McClaughry, D.S.O., M.C., D.F.C.; A. A. B. Thomson, M.C., A.F.C.; N. C. Spratt, O.B.E.; F. P. Don, O.B.E.

APPOINTMENTS.

The following appointments take effect on the dates mentioned:—

AIR VICE-MARSHALS.—A. M. Longmore, C.B., D.S.O., to be A.O.C. Coastal Area, R.A.F., at the end of September, 1934, *vice* Air Marshal Sir Robert H. Clark-Hall, K.B.E., C.M.G., D.S.O.; C. S. Burnett, C.B., C.B.E., D.S.O., to be A.O.C., Inland Area, R.A.F., about March, 1935, *vice* Air Vice-Marshal A. M. Longmore; W. G. S. Mitchell, C.B.E., D.S.O., M.C., A.F.C., to be A.O.C., British Forces in Iraq, about February, 1935, *vice* Air Vice-Marshal C. S. Burnett.

AIR COMMODORES.—H. M. Cave-Brown-Cave, D.S.O., D.F.C., to be A.O.C., Royal Air Force, Cranwell, and Commandant of the R.A.F. College, about December, 1934, *vice* Air Vice-Marshal W. G. S. Mitchell; R. H. Verney, O.B.E., to be Director of Technical Development at the Air Ministry, about September, 1934, *vice* Air Commodore H. M. Cave-Brown-Cave; J. T. Babington, D.S.O., to be A.O.C., Royal Air Force, Halton, about September, 1934, *vice* Air Vice-Marshal N. D. K. MacEwen, C.M.G., D.S.O.; C. T. Maclean, C.B., D.S.O., M.C., to be A.O.C., Royal Air Force, Middle East, about October, 1934, *vice* Air Vice-Marshal C. L. N. Newall, C.B., C.M.G., C.B.E., A.M.

HONORARY AIR COMMODORE.—H.M. the King has been pleased to approve the appointment of The Marquess of Londonderry, K.G., M.V.O., Secretary of State for Air, as Honorary Air Commodore of No. 607—County of Durham (Bomber) Squadron, Auxiliary Air Force.

ORGANIZATION.

COASTAL AREA CHANGES.—No. 22 (Bomber) Squadron moved from Martlesham to Donibristle on 1st May, 1934, and was transferred from Inland to Coastal Area, with effect from that date.

The R.A.F. Station, Upavon, will come under the Command of the Air Officer Commanding, Coastal Area, with effect from 16th May, 1935.

CENTRAL AREA.—No. 15 (B) Squadron moved from Martlesham to Abingdon on 1st June, 1934, and was transferred from Inland to Central Area, with effect from that date.

No. 142 (B) Squadron, formed at Netheravon on 1st June, 1934, now comes under the Command of the A.O.C., Central Area.

R.A.F. Station, Netheravon, remains under the Command of the Air Officer Commanding, Inland Area.

FIGHTING AREA.—No. 111 (F) Squadron moved from Hornchurch to Northolt on 15th July.

BERMUDA BASE.—A small party of personnel, to form the nucleus of the R.A.F. Base Party, Bermuda, proceeded to that island for the purpose of maintaining the aircraft of the Fleet Air Arm on the West Indian and American Stations. It is anticipated that the remainder of the personnel for the Base Party will proceed to Bermuda in the autumn of this year.

PERSONNEL.

R.A.F. STAFF COURSE, 1935.—The dates of the terms of the R.A.F. Staff Course, 1935, are as follows:—

1st Term—22nd January to 5th April.

2nd Term—6th May to 2nd August.

3rd Term—23rd September to 20th December.

PASSING-OUT INSPECTIONS.—The Passing-Out Inspection of aircraft apprentices from No. 1 School of Technical Training (Apprentices), Halton, was carried out by Air Vice-Marshal Sir E. Ludlow-Hewitt, on 24th July, 1934; 283 aircraft apprentices were passed out.

The Passing-Out Inspection of aircraft apprentices from the Electrical and Wireless School, Cranwell, was carried out by Air Vice-Marshal W. R. Freeman; 69 aircraft apprentices were passed out.

The Passing-Out Inspection of Flight Cadets from the R.A.F. College, Cranwell, was carried out by Air Marshal Sir Hugh C. T. Dowding on 27th July; 28 Flight Cadets were passed out. The Sword of Honour, presented to the best all-round Flight Cadet in the senior term, was awarded to Flight Cadet Under-Officer Paul Wingrave Ashton.

ROYAL AIR FORCE MEDICAL SERVICE.

New regulations for the Medical Branch of the Royal Air Force have been adopted as a result of the recommendations of the Warren Fisher Committee.

The rule that a Medical Officer must stand by whenever flying is in progress has been cancelled, except for the R.A.F. College and Flying Training Schools. This will enable the number of Medical Officers required at other stations to be reduced to one each. Arrangements are being made for local practitioners to be summoned when necessary, and trained medical orderlies will be available to give first-aid treatment.

Permanent Medical Officers will have an opportunity to take specialist courses after five years' service, and the promotion of those with specialist qualifications will be accelerated. Appointments in the rank of Squadron Leader and above will

be up-graded in rank and the average age of promotion will be reduced. The yearly grant of permanent commissions will be regulated so that these improvements will be permanently secured to the Service. At the same time about half of the short-service officers will be granted permanent commissions. The retiring age of officers with permanent commissions subsequent to 19th July, 1933, and all officers who on that date were of less than five years' service will be:—Wing Commanders and below, 55; Group Captains and Air Commodores, 57; Air Vice-Marshals, 60.

The Order also authorises an increase of 5/- a day in the pay of (Medical) Squadron Leaders, to take effect from 1st May, 1934, and details gratuities payable to short-service Medical Officers and permanent officers permitted to retire voluntarily.

MATERIAL.

NOMENCLATURE.—The following official nomenclature has been adopted:—

For the "Cierva" autogiro, type C.30 P.—Rota.

For the "Osprey" aeroplane with metal airscrew, flotation dinghy installed in top starboard plane, and engine-driven generator—Osprey III.

For the air-cooled radial engine, previously known as the seven-cylinder "Genet Major"—Civet I.

For the "Gipsy" engine, with cylinders 4 mm. larger in the bore than those of the "Gipsy III" engine—Gipsy Major I.

NEW AIRCRAFT.—Among the aircraft transferred to the Part Publication List are the Westland Single-seater Day and Night Fighter, Fairey General Purpose, and a Fairey Three-seater Spotter Reconnaissance. Available particulars of these aeroplanes are as follows:—

Westland Single-seater Day and Night Fighter (Goshawk engine).—This aircraft is a gull-winged tractor biplane with pilot's cockpit forward of the main plane leading edge. The engine is mounted amidships, driving the airscrew through an extension shaft and gear box in the nose of the aircraft. The engine is evaporatively cooled. The undercarriage is of the split axle type, and wheel brakes and tail wheel are incorporated. Span: top plane, 38 ft. 6 in.; bottom plane, 34 ft. 9 in.; length, 29 ft. 6 in.; height, 10 ft. 9 in.

Fairey General Purpose (Pegasus engine).—This is a single bay biplane constructed of light alloy and steel. Frise ailerons and automatic slots are fitted. Wheel brakes and tail wheel are incorporated. Span, 53 ft.; length, 38 ft. 3 in.; height, 15 ft. 4 in.

Three-seater Fleet Spotter Reconnaissance (Kestrel engine).—A single bay biplane of stainless steel construction. The wings are arranged to fold. Frise ailerons and automatic slots are fitted. An evaporative cooling system is employed, with surface condensers mounted under the top centre plane. Wheel brakes are incorporated in the undercarriage and a tail wheel is fitted. Span, 46 ft.; length, 34 ft.; height, 12 ft. 4 in.; folded width, 17 ft. 10 in.

MISCELLANEOUS.

EMPIRE AIR DAY.—Their Majesties the King and Queen paid a visit to the R.A.F. Station, Bircham Newton, on 24th May, 1934. An inspection of various types of aircraft and aircraft equipment was carried out by His Majesty, and a short exhibition of flying was given by No. 35 (B) Squadron, accompanied by a Hawker "Fury" and a Handley Page "Heyford."

Following the visit, a message was received by the Air Officer Commanding-in-Chief, Air Defence of Great Britain, stating that His Majesty had expressed his warm appreciation of the manner in which the R.A.F. programme at the Station was carried out, and was greatly impressed with the remarkable efficiency of those who took part in the air display. The King also expressed his pleasure at the opportunity of inspecting the various aeroplanes and articles of aircraft equipment which were on view, and the message added that Their Majesties had carried away a most happy recollection of their visit to Bircham Newton.

In connection with Empire "Air" Day, inaugurated this year at the instance of the Air League of the British Empire, forty R.A.F. and A.A.F. Stations were thrown open to the public, on payment of a small admission fee. Approximately 80,000 people visited the Stations, and were able to inspect squadrons carrying out their normal training both in the air and in workshops. As a result, a sum of over £3,000 has been handed to R.A.F. charities.

ANNIVERSARY OF FIRST CROSS-CHANNEL FLIGHT.—On 23rd June the Marquess of Londonderry flew from Hendon to Le Bourget to attend the French celebrations at Buc aerodrome to commemorate the twenty-fifth anniversary of the first cross-Channel aeroplane flight by M. Bleriot.

Air Vice-Marshal P. B. Joubert de la Ferté, C.M.G., D.S.O., was in attendance, and No. 23 (Fighter) Squadron was also present by invitation and as the guest of the French Government.

AIR DEFENCE EXERCISES, 1934

OBJECT.—The primary object of this year's Exercises was to afford combined tactical training and to exercise the personnel of the Observer Corps and the ground defences.

DURATION.—The Exercises took place between Monday, 23rd July, and Thursday, 26th July; they began each day at 6 p.m. and terminated the following morning at 9 a.m. They consisted each day of three phases:—(a) early evening phase, in which day bomber squadrons were mainly employed; (b) night phase, in which multi-engined bombers carried out raids; (c) early morning phase, when day bombers were again employed. The fighter units and ground defence organization were active throughout all the phases.

THE PROBLEM.—Northland is a country acting on the defensive. Her territory consists of England East of a line drawn North and South through Liverpool and Portland, and South of a line drawn East and West through Lincoln and Liverpool. The capital is London. Southland is attacking. Her imaginary coast line extends at a minimum distance of 30 miles beyond that of the English Channel and southern North Sea between the Wash and Portland. Southland squadrons had to start their attacks from the far side of this line. The Northland forces consisted of 14 fighter squadrons and one reconnaissance squadron; total 180 aircraft. The Southland forces consisted of 18 squadrons—10 day bomber and 8 night bomber; total 196 aircraft. The ground defences, under the command of Major-General H. F. Salt, C.B., C.M.G., D.S.O., consisted of certain searchlight units of the Territorial Army. No anti-aircraft artillery units took part in the Exercises. Targets were detailed as objectives in and around London; also Whitley Abbey aerodrome, Coventry; Hornchurch; North Weald and Northolt aerodromes. Certain precautions which would not have to be observed in

war were necessarily laid down; amongst these was a regulation that bombing attacks had to be carried out at over 10,000 feet whenever possible, except in the case of diving attacks on certain specified targets. Fighters were required to carry navigation lights throughout the night exercises, and bombers also, except when approaching through the illuminated areas.

FIRST NIGHT.

Southland attacks commenced soon after 6 p.m.; 36 Gordons crossed the coast at Harwich, turning southwards at Bedford for London; 21 Harts came in over Selsey, turning northwards at Haywards Heath; five individual squadron raids converged on London. The enemy were picked up and reported by the Observer Corps, and fighter squadrons were despatched to intercept them. In all, eight fighter squadrons were directed across the enemy's courses. The northern attack was not intercepted, the reason for this being attributed to the overloading of communications, and also to the successful handling of the bombers.

The night phase commenced soon after 9 p.m. in bright moonlight. The first attacks were directed against Coventry. Of the 39 separate raids carried out, 33 were intercepted by the night fighters; in many cases more than one attack was made on the bombers.

The morning phase of 24th July opened with an attack on Northolt aerodrome; two other Southland Hart Squadrons attacked the aerodrome at North Weald and Hornchurch. Poor visibility rendered the attacks on London objectives difficult. A Wing formation of 33 Gordon aircraft was sighted by Northland Reconnaissance aeroplanes as it approached the coast. The formation came up the Thames to Dartford, and then divided to attack Dagenham, the West India Docks, and Kidbrooke. The Dagenham Squadron was not intercepted, but the other two were engaged by Northland Squadrons.

SECOND NIGHT.

Rainstorms interfered with the Exercises on the evening of 24th July, but a Wing of 30 Gordons delivered an attack on Whitley Abbey near Coventry about 7.50 p.m. They were met by defending fighters from Cambridge. Another squadron attacked Dagenham and was heavily engaged by 9 Furies. A squadron of Sidestrands which crossed the coast near Harwich were attacked by fighters, and two Hart squadrons approaching from Poole diverted their course from London to Coventry. They reached their objective without resistance. Land communications were badly interrupted by intense electric storms, and wireless telegraphy between the ground and aircraft became impossible.

Mist over the whole area of operations delayed the Exercises on the morning of 25th July. The first raid was one by a Gordon squadron which crossed the coast at the Wash and made its way to Coventry. It was intercepted by fighters from Peterborough. This was followed by a succession of attacks on London, the raiders approaching from heights of between 10,000 and 17,000 feet. During the greater part of this period, three of the fighter squadrons were unable to fly owing to mist.

THIRD NIGHT.

By midnight on the 25th the sky cleared and the moon was shining, conditions thus favouring the night fighters, in that the searchlights had no great difficulty in picking up the enemy bombers, who in their turn were deprived of the use of clouds. Southland night bombers continued to cross the South and East coasts

to attack objectives in the London area from 10 p.m. to 2.49 a.m. Forty separate raids by 44 aircraft were undertaken. The A.O.C. of the Northland fighters received timely warning, and 29 of the raids were intercepted on the way to the target and 5 more on the return journey. Some of the bombers were attacked by fighters four or five times, and would not have reached their objectives.

A final effort by Southland day bombers took place early in the morning on 26th July, when all but one of the attacks were concentrated on objectives in London, the remaining attack being a low-diving one on North Weald aerodrome. Three of the attacking squadrons were unable to return to their base on account of low clouds and had to land at other aerodromes and proceed home later. The Northland fighters successfully intercepted seven of the bomber squadrons on their way in, and one on the return journey, pursuing the enemy up to 16,000 feet. Operations ceased at 9 a.m. on 26th July.

OVERSEAS COMMANDS

No. 202 (F.B.) SQUADRON.—Five Fairey IIIF floatplanes of No. 202 (F.B.) Squadron left Malta on 18th June, 1934, on an inter-command cruise to Khartum and return. Calls were made at Syracuse, Corfu, Athens, Rhodes, Famagusta (Cyprus), Haifa, Aboukir, Helwan, Luxor, Wadi Halfa, Merowe, and Atbara; and Khartum was reached on 27th June.

The return flight was commenced on 4th July, and followed the same route as the outward journey, the cruise being completed on 21st July. The distance flown was approximately 6,500 miles.

DOMINION AIR FORCES

AUSTRALIA.

NEW AIRCRAFT.—It has been announced by the Minister of Defence that the Commonwealth Government will spend £345,000 on British aircraft.

ANTARCTIC EXPEDITION AWARDS.—Two officers of the Royal Australian Air Force who took part in the Antarctic Research Expedition of 1929-31 have been awarded the Bronze Polar Medal with clasp; they are Flight Lieutenants S. A. C. Campbell, and E. Douglas.

NEW ZEALAND.

An Air Ministry Order (N.276 of 7th June, 1934) states that the title "New Zealand Permanent Air Force" has been changed to "Royal New Zealand Air Force."

SOUTH AFRICA.

DEFENCE ESTIMATES.—The Estimates for the Defence Services for the current year show an increase of £336,992 over last year's Estimates. Included in the Estimate is a sum of about £20,000 to be devoted to aircraft replacement. The aerodromes and aviation Vote amounts to £39,700, which is an increase of nearly £10,000 on last year.

In the course of the debate on the Estimates it was announced that the Government hoped to have an air force of three Squadrons: one bomber, one general purposes, and one instructional; also ten artillery batteries, and 24 Citizen Force Battalions at the end of a five-year programme. The coastal defences would be improved and would include bomber aircraft.

FOREIGN.**BELGIUM**

At the end of last year the Belgian Government voted a supplementary credit of £6,600,000 for the purpose of strengthening the defences of the nation. It is now learned that part of this sum is earmarked for the formation of a third Air Regiment.

EGYPT

Ten new aeroplanes are to be built in England for the Egyptian Army at a cost of £71,000. Squadron Leader V. H. Tait, seconded from the Royal Air Force for service with the Egyptian Government, is visiting England in connection with this purchase.

FINLAND

A considerable order has been placed by the Finnish Government for Bristol Bulldog IV single-seater fighter biplanes. These aircraft are an improved type of the standard R.A.F. single-seater fighters, and are credited with a speed of well over 200 m.p.h.

FRANCE

AIR POLICY.—General Denain, the Air Minister, in a statement in the Chamber on 3rd June, outlined French air policy. The French Air forces, he said, were to be organized on a plan of defence, co-operation, and combat, together with an offensive against vital centres of the enemy in time of war. He considered that France was inferior in the air as compared with certain other European countries. German aviation, he said, was organized on a military basis, and Italy had made extraordinary progress with sea-going aircraft. Great Britain's air policy was wholly directed to the defence of the country, but as other countries had given an offensive turn to their air armaments France had been obliged to modify conditions which had hitherto governed the development of her air armaments, especially in view of the increasing technical efficiency of the aeroplane and bomb as instruments of destruction.

MODERNIZATION PROGRAMME.—The Government has recently reviewed the present condition of the French Air Force, and has arrived at the conclusion that although it is numerically strong enough to carry out its duties, its organization and equipment are out of date. This view has been accepted by the Air Commission of the Chamber of Deputies, which has in consequence recommended the adoption of a three-year plan for modernization, and has recommended that an extra-budgetary credit of approximately £38,500,000 should be voted for the purpose.

NORTH AFRICAN AIR REGION.—Following on the organization of France into four Air regions, a Fifth Air region is to be created in North Africa. This new Region will embrace all the Air Force units stationed in Morocco, Algeria and Tunisia. Hitherto, these units have been administered directly by the Air Ministry and for operations, etc., came under the local Resident-General, or Governor-General, of the territory concerned.

General Armengaud, at present the Inspector-General of Air Force Schools, has been appointed Commander of the Fifth Air Region and Inspector-General of Overseas Air Forces; in the latter capacity, he will be responsible for the co-ordination of all Air Force units stationed in the Colonies as well as in North Africa. His appointment is to take effect from September, 1934.

TRAINING AEROPLANES.—One hundred light aeroplanes have been ordered with a view to one being attached to each squadron of heavy machines for training and liaison work. It is apparently the intention to use these for more economical training of observers.

ITALY

HEIGHT RECORD.—On 11th April Renato Donati, flying a Caproni type 113 aeroplane, fitted with Pegasus 500 h.p. engine (built by Alfa Romeo under licence), reached an altitude of 14,433 metres (47,352 feet). The Royal Aero Club of Italy have forwarded the necessary evidence to the F.A.I. for registry as an international record.

The previous altitude record was that held by M. Lemoine, who reached 13,661 metres (44,820 feet) on 28th September, 1933.

JAPAN

NEW BASES.—It was reported in the Japanese press that it has been decided to establish air defence bases in Tokyo, Osaka, Nagoya and at the northern end of the island of Kyushu. This marks the initiation of a regular organization for home defence.

PERSONNEL.—It has been decided to admit 290 youths for training as pilots, mechanics, artificers, and signallers in the Military Air Service. They will serve for a period of twelve years with opportunities of re-engaging.

The personnel in the Naval and Military Air Services in Japan being mainly conscript, the introduction of time-serving pilots, mechanics, etc., is bound to be of considerable benefit. The Naval Air Service has a similar scheme for the admission and training of youths.

NAVAL AIR TRANSPORT.—In order to facilitate the transportation of officers, a Fokker passenger aircraft has been supplied to each Naval Air Station in Japan.

CIVIL AIR PILOTS.—The increase of Civil pilots during the last few years is remarkable. The total number in 1931 was 315; there was an increase of 76 in 1932; and a total of 494 in 1933. In March, 1934, a total of 534 pilots was stated to be available for service.

SOUTH SEA FLIGHTS.—Preparations are being made for experimental flights between Japan proper, the Ogasawara Islands, and Saipan. It is proposed to use two large flying boats.

ACCIDENTS IN THE NAVAL AIR SERVICE.—In 1931 there were 69 crashes, involving 18 deaths and 2 serious injuries. In 1932, 12 airmen were killed and 5 seriously hurt, whilst in the first ten months of 1933 there were 79 accidents, in which 26 airmen were killed and 11 seriously injured.

CAPACITY OF AIRCRAFT FACTORIES.—The Japanese Press states that the capacity of aircraft factories in Japan has increased since 1931 from 300 to 1,000 aircraft per annum.

SOVIET UNION

LARGEST LANDPLANES.—According to the Russian Press, one or more very large aeroplanes are under construction. The "Maxim Gorki" is stated to have a gross weight of nearly 40 tons and is to be used for propaganda work. It carries 23 crew and passengers and 7 tons of cargo. Eight engines developing a total of 6,400 h.p. will give a maximum speed of 150 m.p.h. and a cruising speed of 137 m.p.h. The maximum range is said to be 1,240 miles. The span of this large monoplane is 210 feet and the length of the fuselage 115 feet.

From other sources it is stated that a huge aeroplane capable of carrying 150 persons and having 16 small rooms capable of seating 128 people is being constructed. The engines of this aeroplane are said to be of 12,000 h.p.

UNITED STATES

AIR ASPECTS OF THE NAVAL EXERCISES.—The manœuvres recently held in the Panama and Caribbean area present certain features of interest from the air aspect,

On 21st April last, the U.S. Fleet off Balboa launched three air attacks on the Panama Canal Defences. The attacks took place in the early hours of the morning, large mass formations being employed. The aerodromes at Albrook Field and France Field were two important objectives, both being heavily bombed, but in both cases the defending aircraft had been removed to temporary aerodromes in the interior of the country. The attacking forces claimed success chiefly on account of the lack of opposition from defending aircraft. On the other hand, the defence claimed that successful counter-attacks had been made with heavy bombs upon the aircraft carriers "Lexington," a hundred miles out at sea, and the "Langley"; also that the massed formations of attacking aircraft, at unusually low altitudes, had offered easy targets for A.A. guns.

In the subsequent exercises in the Caribbean, five days were devoted to a problem involving the recapture by the Blue Fleet of West Indian islands taken by an enemy Grey force. The Commander of the Blue Fleet had at his disposal 230 aircraft, of which 90 were working from shore bases. His forces included the "Saratoga" and "Langley," but his movements were hampered by the presence of transports carrying landing forces. The Grey force included the "Lexington" and a number of submarines, its aircraft complement being 125. The tactics employed by the Grey commander were limited to making harassing attacks on the Blue Fleet, in which aircraft were continuously employed. Blue aircraft made many of their attacks on the islands under cover of smoke screens.

The airship "Macon" was attached to the Blue Fleet, its duties being scouting in outlying areas. It was attacked by Grey aircraft, however, in spite of its own defending aircraft, and suffered defeat. In addition, the airship was actually damaged in the course of the exercises, two of its girders being broken. It has been since stated that the failure of the "Macon" may lead to changes in the lighter-than-air policy of the U.S. Navy Department.

GLIDER TRAINING.—Gliders are being introduced at the Pensacola Naval Air Station for initial training. Half the students will start their course with glider instruction, the other half with ordinary flying. The intention is to ascertain whether the former will prove to have greater aptitude in learning to fly than if they had started on power-driven aircraft.

REVIEWS OF BOOKS

GENERAL

Curzon : The Last Phase, 1919-1925. A Study in Post-War Diplomacy.

By Harold Nicolson. (Constable & Co., Ltd.). 18s.

This book should be read, firstly, because it explains many historical events which have already become remote, e.g., the evolution of Turkish nationalism and the creation of modern Turkey; secondly, because it describes events leading up to and after Chanak, and the settlement of the questions of The Straits and of Mosul; thirdly, because it points out the differences between post-War and the "old" diplomacy, and contains some valuable suggestions as to the training of those who have to carry out British policy in the light of modern democratic requirements; and lastly because Mr. Nicolson is able to give us an insight into the character of the great personality who was in name, if not always in fact, responsible for the execution of British policy in the period under review.

It covers a period crowded with problems requiring early solution and with decisions the consequences of which, though obvious enough to us now in the light of their results, could hardly have been envisaged by those who directed world affairs after the Armistice. For Lord Curzon it began as a period full of hope, when on 6th January, 1919, he stepped after ten years of retirement into the office which he had so ardently desired from boyhood. The Foreign Office was also, he hoped, a stepping stone to the supreme ambition of his life, to be Prime Minister. Years of disillusion and disappointment followed during the Premiership of Mr. Lloyd George.

After the War the Coalition Government had to deal with six major problems: the conclusion of peace with Germany and the resultant problem of Reparations; the conclusion of peace with Turkey, and its enforcement; the maintenance of a united front with France, and to a lesser degree, with Italy; the problem of Soviet Russia; Egypt; and Persia. Lord Curzon had little knowledge of continental politics and Reparations frankly bewildered him. In three, therefore, of the six problems he had no desire to assume responsibility; in two of the remainder he was either allowed unrestricted scope, or subjected—in the case of Egypt—to perfectly normal management. He regarded himself, and he was, an expert on Eastern questions, and his judgment as regards Asia Minor was correct; yet on the question of the Turkish settlement his opinion was deliberately ignored—with untoward results.

Events proved that Mr. Lloyd George and Lord Curzon could never be a successful combination. Between them they allowed British prestige so to dwindle that by the end of 1922 our influence in world affairs was at its lowest ebb. Mr. Nicolson is at pains to be fair to both for their share of this failure. It was, he writes, our prestige and not our resources which collapsed after the War. That prestige was based on certain definable methods: never to interfere unless your interference was decisive; never to promise unless your promises could be fulfilled;

not to worry about what the other man might have at the back of his mind, but to make quite sure that he was in no doubt regarding the certainty of your own intentions; to be just, forgiving, and above all *reliable*. It was on the reliability of British methods that our prestige was based. So long as our rule appeared inevitable, it remained unquestioned. It was doubts, hesitations, inconsistencies of policy which undermined our prestige. Mr. Nicolson goes on to emphasize the difference which ought to exist between foreign policy and its execution. As a creator of policy Mr. Lloyd George, he writes, was often superb; as an executant he was often deplorable, and the latter was due to the fact that the essential element—reliability—was lacking in his diplomacy. It was not that the Prime Minister's methods were ever consciously evasive or misleading; it was that they were personal, forensic, intuitive, imprecise, variable, conceited, and far too private.

The net result of the collaboration of Mr. Lloyd George and Lord Curzon was a profound distrust of British policy in the minds of the French especially, and on the Continent generally. But Mr. Nicolson points out that the difficulties of the post-War period were not wholly due to the errors of individual statesmen; they were due in part to a weakening of, or at least an alteration in, the national will to rule.

It was after Mr. Bonar Law had succeeded to the Premiership that Lord Curzon found an opportunity to show his real worth. He rose to the occasion, and at the first Conference of Lausanne which he so ably conducted at the end of 1922, he not only settled the question of The Straits and prevented Mustapha Kemal from playing into the hands of Russia, but he solved the question of Mosul by insisting on its being referred to the League of Nations, thus laying the foundations of the Treaty with Turkey by which, a year after Curzon's death, the Mosul region was handed over to Iraq.

Lord Curzon's triumph in re-establishing British prestige at Lausanne would seem to have assured to him the succession to the Premiership after Mr. Bonar Law's resignation; but to his intense disappointment the mantle fell on Mr. Baldwin. What were the gaps in his equipment which prevented him reaching the goal of his ambition? Mr. Nicolson helps us to look for a reason. He suggests that the popular estimation of Lord Curzon's character was wrong in nearly every particular. Lord Curzon, he writes, was essentially an administrator, not a politician. The tragedy of his life was that he imagined a man could attain the highest office in the State by the sheer worth of industry, integrity, intelligence and efficient public service. It was only at the end of his life that he realized that in modern England no man can become a statesman unless he has served for many years as politician. Lord Curzon could never have been a popular figure. He was unable to conceal his gifts behind a mask of human mediocrity. He never succeeded in obtaining the support either of the popular, or even of the responsible, Press. His public manner created the legend of a man conceited, reactionary, unbending, and aloof. Possibly it was the painful spinal disease which he contracted in early manhood and which haunted him all his days that led to the rigidity of his philosophy of life.

Lord Curzon was an enigma to many, and his memory deserves the meticulous care which Mr. Harold Nicolson has devoted to his task. We must congratulate the author on his knowledge of his subject, and for the sympathetic way in which he has been able to put on record some of the achievements of perhaps one of the greatest of Eton's sons.

The book is well printed and contains a number of interesting photographs, all the necessary maps, and a sufficient index.

Imperial Policing. By Major General Sir C. W. Gwynn, K.C.B., C.M.G., D.S.O. (Macmillan & Co., Ltd.). 10s. 6d.

Callwell's "Small Wars," written in the early nineties, was for long the textbook for police work performed by the Army. It dealt with warfare in a pure if limited form: the defence of frontiers, minor conquests, reprisals, punitive expeditions. The primary objective was the complete defeat of the enemy, generally achieved by the infliction of heavy casualties. That type of war is now comparatively rare. Frontiers have stabilized, control has consolidated, communications have vastly improved. Consequently the Army is now usually faced with action in support or replacement of civil government in administered areas, where it has to deal with fellow-subjects whose riotous or rebellious behaviour must indeed be firmly quelled, but with minimum loss to the offenders and by methods that leave no aftermath of bitterness. General Gwynn has made a study of this difficult task, and in his early chapters outlines the principles on which it should be executed. He devotes the remainder of the book to the description of a series of selected operations of the nature under review.

There is an impartial account of the affair at Amritsar, leading up to the conclusion that General Dyer's action was unwarranted by the situation. That view is probably correct; and the Government was, therefore, justified in withdrawing its support. It failed, however, to make any clear statement of its reasons for doing so; and, consequently, the belief prevailed that any officer convicted of firm, even if successful, action in a similar emergency would receive short shrift—a belief that naturally cramped initiative to a high degree, especially in India.

The account given of the Shanghai Defence Force reads rather like an *apologia*, and lends colour to the rumour that Admiral Tyrwhitt in cabling for a division hoped to obtain, not a division of the Army numbering some 20,000 men, but a division of Marines about 2,000 strong. This is probably the only case in our history of over-insurance. In some of the cases given in the book we were under-insured, and only the favour of fortune enabled us to pull through without a disaster.

Several examples are given of the excellent co-operation of the three Services, and there is now no doubt that given fast cruisers, transport-aircraft, and large garrisons in the Mediterranean we could be in a strong position in the Middle East. Risings in Palestine and India, however, afford clear indications of the limitations of aircraft and of the danger of dual control. The Army and the Air Force should be under a single command in India, and the same principle should hold in the Middle East.

In this kind of warfare it is seen to be the exception rather than the rule for infantry to operate with their normal organization and equipment. We find them travelling in aeroplanes, lorries and cars, in which they cannot take their mules. Hence on arrival at their destination, they have no transport for their machine guns and reserve ammunition. There is a strong case, therefore, for a man-portage machine gun, and for an appropriate revision of organization.

"Imperial Policing" deals with a subject of more importance to-day than "Small Wars," and furnishes an excellent complement to that volume. It should be read not only by the Army but also by the Navy, the Air Force, police and also by administrative officials. It will help everyone to realize his proper place in the picture and to co-operate intelligently to the common end.

Wehrgedanken. A Collection of Essays dealing with National Defence. (Hanseatische Verlagsanstalt, Hamburg). 7 Rm.

Under this title of "Defence Thoughts" a series of essays from different pens are presented. The first section contains a string of contributions which are mainly a glorification of the German army of 1914, together with various pleas for its reconstitution. The second section contains much that is of interest: first a reasoned statement for the belief in the old Clausewitzian doctrine that victory in battle is the necessary condition for victory in war. This statement is significant: more so is the emphasis laid on this interpretation of Clausewitz as against his detractors, who wish to imply that he believed that actual victory in battle brings a campaign to an end—as it did, in fact, at Waterloo or Sadowa.

Another essay, perhaps the most important in the book, is that by Dr. Hanslian on "Gas Warfare." There is no question but that Germany contemplates a far-reaching use of gas and chemical resources in any future war. A short essay by Captain Pochhammer—not an unfamiliar name, perhaps—emphasizes the need for naval armaments and ends with the slogan that the "sea is the true source of national greatness."

The book as a whole is an indication of how intense is Germany's conviction that she must re-arm. It is worthy of study for that reason alone.

Grundzüge der Wehrpolitik. By K. L. Von Oertzen. (Hanseatische Verlagsanstalt, Hamburg). 6.50 Rm.

This volume, whose title signifies "Principles of Defence Policy," is a careful compilation from all those sources of information which should guide the organization, form and maintenance of armed forces. It is interesting in that it gives a mass of detail that is not always easy to find. In Germany before the Great War the existence of the Army had so long been taken for granted that few Germans had ever troubled themselves as to the why and wherefore of things. Then of a sudden they found themselves faced with an entirely new and unfamiliar problem. This book is the result.

The author writes very soberly and quietly; it is not easy to differ from him as to the majority of his statements, as they seem very natural to the English reader. His chapter on the age of great soldiers of the past is admirable both in its facts and conclusions; but it is curious to find that the German mind had never been struck by the great age of such men as Moltke or Radetzky. It also contains some simple and commonsense remarks as to naval and air warfare and their relation to land operations. The writer is not an unqualified believer in absolute air war.

Notes and Comments on the Dardanelles Campaign. By A. Kearsey, D.S.O., O.B.E., late Lieutenant-Colonel, General Staff. (Gale & Polden). 4s.

This epitome of the Dardanelles operations is based on the Official History and all other good accounts of the campaign. It is written in the author's well-known succinct style, and appears to fulfil its purpose admirably. But as is the case with other books of this nature, it is not calculated to be read without reference to the more complete histories: it constitutes but a series of signposts (both naval and military, so to speak) along the student's road. The final chapter (of 16 pages) recapitulates all the "lessons" that are to be gleaned from the campaign, from its original inception right down to the evacuation: these criticisms are useful and well arranged, if somewhat stereotyped in character. The table of contents is unusually detailed and serves as an index. The book will be popular with examination candidates.

A History of the World War, 1914-1918. By Liddell Hart. (Faber & Faber). 8s. 6d.

This book is a reprint of the same author's "The Real War: 1914-1918," originally published in 1930 and reviewed in the August number of the *JOURNAL* for that year (p. 653). There are some hundred more new pages, which remedy some of the omissions noticeable in the original edition, more particularly new descriptions of first Ypres and Lemberg, also numerous corrections. Otherwise the treatment of the subject remains the same, and the character of the work has been left unchanged, but has gained greatly from the insertion of many corrections and small additions.

NAVAL

Naval History and the Citizen. By Admiral Sir Herbert Richmond, K.C.B. (Cambridge University Press). 2s.

For his inaugural lecture on taking up the Vere Harmsworth professorship of imperial and naval history at Cambridge, Admiral Richmond has chosen the very appropriate theme that naval history is an integral part of our national history and that a knowledge of it is essential to every citizen because, ultimately, it is in his hands that the destiny of the Empire lies.

Within the general purpose of his lecture, however, he deals with one or two specific aspects of sea power. He refutes, what he describes as a "popular misinterpretation" of naval history, that the use to which we have always hitherto put our sea power has been to blockade the enemy, and he discredits the argument that modern conditions having rendered blockade impossible, therefore we should substitute some other form of power. He foresees the danger of "policies evolved from syllogisms with a false major premise." While we may agree with the deductions he draws from the historical episodes he quotes and also with the assertion that "blockade" in its old sense is impracticable, it is permissible to question whether there is not a more convincing argument for sea power. The object of the old-time close blockade was to interrupt an enemy's supplies by closing his ports; in a modern war it is sought to achieve that same object by interfering with, and if need be sinking, merchant shipping on the high seas; both forms of exerting pressure on an adversary are attributes of sea power, and the only defence against such pressure is sea power. Surely this is a more convincing method of showing that sea power is still of the highest value than the somewhat negative line of reasoning that blockade in times past was not part of our national policy and that therefore its abolition does not effect the issue one way or another.

We can follow the author better when he shows that fear of interruption to commerce has often acted as a deterrent to war. We are inclined to think that this is the case to-day in greater degree than in the times from which he draws most of his examples, because the whole machine of international economics is now infinitely more complex and delicate, and nations have the supreme example of the late war to remind them that it is not only the vanquished but the whole world which suffers from any dislocation of the wheels of commerce. Again we are with him in his contention that the true lessons of history should be appreciated before advocating any change in international usages and conventions. Any curtailment of sea power or its application would not tend to prevent war or to shorten hostilities and, as Admiral Richmond shows, would be highly perilous to the safety of the Empire.

Other aspects of sea power which he would have his countrymen digest are the value of ships in protecting territory and their limitations in attacking shore

defences. As always, this gifted authority paints a colourful picture of the past which is pleasing and instructive, though the incorrigible realist may demand a more modern setting if he is to find it convincing—and of such are wont to be the younger generation to whom we hope Admiral Richmond will bring a knowledge of this most important ingredient in the making of British citizens.

Der Krieg zur See. Der Handelskrieg mit U-Booten. Band 3. (Mittler & Sohn, Berlin). 12 RM.

This third volume of the German official account of the submarine war on commerce should be of great interest to the student of war in that it throws considerable light on the struggle that took place in high places in Germany about the conduct of the war at sea. It covers the period from October, 1915, to January, 1917. In September, 1915, submarine warfare in British waters was virtually abandoned owing to a possible breach with the United States arising out of the sinking of the "Lusitania" and "Arabic"; but, under pressure of the military authorities, the Kaiser, in March, 1916, sanctioned the new commerce war, though in a modified form. This was ended by the sinking of the "Sussex," which was carrying some American passengers. An ultimatum from the United States following this incident gave rise to hopes in Germany that the American President would intervene for a settlement of the war. But the advent to power, in August, 1916, of Hindenburg and Ludendorff, impelled the Kaiser in February, 1917, to sanction unrestricted submarine warfare. The consequent bitterness between Germany and the United States could only lead to war.

The picture of the subsequent U-boat campaign is given in full, particular attention being paid to the operations in the Mediterranean and in more remote theatres of war. The work of each submarine is described in detail.

The total of the German U-boats is said to have grown from 40, in October, 1915, to 102, in January, 1917. The Germans admit a loss of 22 in that period against a total loss of 2,876,000,000 Allied tonnage.

The Voyage of the Bounty's Launch. Edited by Owen Rutter (The Golden Cockerel Press). 2 Guineas.

Mr. Owen Rutter set out to reproduce the only known copy of John Fryer's Narrative, which, by permission of the Council, he had been allowed to borrow for the purpose from the R.U.S. Library. He was writing his introduction when a lucky chance enabled him to discover the original, which he was able to compare and so restore the account to that of the actual writer. He has prefaced this Narrative with a copy of Bligh's Despatch to the Admiralty.

The two documents make an interesting addition to "Bounty" literature. The volume is most sumptuously produced with appropriate wood-engravings by Robert Gibbings.

MILITARY

Infantry in Battle. (The Infantry Journal, Inc., Washington, D.C.). \$3.0.

This book was prepared in the Infantry School at Washington in order to give practical illustrations culled from war experience of the principles laid down in the training manuals, and to show how surprisingly difficult the application of these apparently simple principles may become under pressure of such influences as heavy casualties, panic or lack of information. The underlying idea is that, unless the officer is taught in this fashion, he is liable to be thrown completely off his balance in his first campaign by the unexpected difference between theory

and practice. Although the examples are taken from the Great War, they are by no means out of date. In the first place, they deal almost entirely with the war of movement and, in the second place, the principles illustrated are for the most part of permanent not ephemeral nature. To quote examples: it is laid down that only by simplicity of plan can the dreadful entanglements incidental to war be avoided; that surprise, dependent on a high collective mobility, remains the principal agent of victory; that optimism and tenacity are essential in a commander who must maintain his objective against all the reports of disaster that flow in upon him, and must never despair of victory until he shall have exhausted all the resources of personal reconnaissance and leadership; that, where control has passed out of the hand of the commander, the audacity or tenacity of subordinates may either win victories or retrieve dangerous situations; and what an incentive it is to the subaltern to study his profession if he realises that he and his platoon may, by skilful and daring action, decide the fate of battles and even in failure inspire countless hosts with their courage!

The limits set to the number and nature of the principles enunciated appear to be rather fortuitous and a few of the examples redundant. The authors may, however, congratulate themselves on a valuable work and on giving "the peace-trained officer something of the view point of the veteran."

Authors-At-Arms: The Soldiering of Six Great Writers. By C. P. Hawkes (Macmillan & Co.). 7s. 6d.

In this volume the author traces the military career of six great authors: Richard Steele; Gibbon; Coleridge; Walter Scott; Landor; and Byron.

Not one of these six can be regarded as anything approaching a successful soldier—only two ever saw active service. Nevertheless the book makes pleasant reading even though it be a trifle spun out in places. Steele was perhaps the most serious soldier of them all, having served first in the Guards and then in Lucas' (now the Border) Regiment. Had he been more of a success, Lord Cutts, his former patron, might have "saved" him from retirement; as it was—and this is a fact the author rather glosses over—Cutts took little notice of Steele's appeal for further favours in the army.

Gibbon was for many years a militia officer; he states that he profited much from his experiences with troops. Coleridge was a palpable misfit in the 15th Hussars; he only served six months in that regiment. Walter Scott became a Quartermaster of Yeomanry and served many years in that capacity at annual trainings. There is something quite attractive in the picture that Mr. Hawkes presents of the great novelist. Then comes Walter Savage Landor, a curious fanatically-minded man, who in his republican zeal went to Spain in 1808 to fight against the French. But after the Convention of Cintra he returned home and does not appear to have thought fit to go to Spain once more. The last story is that of Byron: this, though a familiar enough tale, bears reading again in these few dramatic pages. Byron was sacrificing himself on a hopeless task; disunion, as ever, wrecked any hope of a combined Greek effort; and so Missolonghi proved to be a mortal blow to Byron.

If these authors failed to make good as true soldiers and leaders, it is curious that the converse should by no means hold good.

A Digest of the Law of Evidence in Courts Martial. By Sir Harry Lushington Stephen and Captain R. Townshend-Stephens. (Macmillan). 7s. 6d.

This book is an adaptation for the use of soldiers of Sir James Stephen's well-known digest of "The Law of Evidence." The original work is an admirable

exposition of principles in a condensed form, and the present work retains its main features, while adapting them to the practice of Military Law. Any officer will benefit by a careful study of this book, but it may be specially recommended to Staff Officers who deal with courts martial, to officers who are likely to act as Presidents or Judge Advocates, and to lecturers on Military Law.

The excellence of Chapter VI of the Manual of Military Law, which was framed by the late Sir Courteney Ilbert, is admitted on all hands, but so closely packed a resumé of so large a subject is necessarily difficult to study, and there is a distinct place for a book of this kind.

A criticism might be made that the process of adaptation has not been carried far enough. References to cases by name are generally useless to readers who have no access to Law Reports, and their absence will occasion no difficulty to professional lawyers. The more a handbook of this kind is freed from an appearance of technicality, the more likely it is to be read by officers. In future editions it would be advisable to cut out all but the most essential references, and all illustrations which have no obvious connection with courts martial.

The statement made on page 108 that married women cannot be tried by courts martial seems to be inaccurate in view of the wide scope of Section 176 (10) of the Army Act.

The editorship of Sir M. L. Stope is a sufficient guarantee of the clear-cut lucidity of the rules, and of the excellence of the tables and indices.

Italy's Part in Winning the World War. By Colonel Girard Lindsley McEntee, United States Army. (Princeton University Press).¹

This book should be of considerable use to students of the Great War, since it presents within the compass of 112 pages a clear summary of the Italian operations, admirably illustrated by some fifty maps, all on a strategic scale. The comments are short and always attempt to show the connection that existed between these Italian operations and the remaining Allied efforts. It is all too seldom that we find a concise account of this nature, illustrated in a manner that affords a "bird's-eye" survey of the war as a whole. In addition there are some very clear plans and diagrams, showing, for instance, the Russian offensive of 1916, the German offensive of March, 1918, and the total Allied losses in shipping suffered during the submarine war period; the latter is of special interest in showing how heavily this fell upon Great Britain as compared with those of her Allies.

Vers l'Armée de Metier. By Charles de Gaulle. (Paris: Berger Levrault).

Behind a somewhat high-flown choice of words the author of this small book has put forward some substantial arguments as to why France should give up her present army system of short service compulsory service in favour of a professional long service force. Most of the arguments may be familiar to many military readers, but the whole case is well put. It may be news to many that France already possesses some 250,000 men serving on long engagements for various duties in her army. It is curious that a French writer should thus be urging his countrymen to reduce the establishment of her forces when German writers are doing all they can to persuade the world that their country is defenceless when it already possesses in the Reichswehr an army of the exact type which this French book so strongly advocates.

¹ The British sale of this book has been undertaken by the Oxford University Press. Price 9s.

The Battle of Pinkie. By Sir Charles W. C. Oman. (Reprint from the *Archaeological Journal*, Volume XC).

Sir Charles Oman was fortunate enough to discover in the Bodleian Library at Oxford an old roll bearing a drawing of a sixteenth-century battle. This he has conclusively identified with the Battle of Pinkie. The pamphlet contains a detailed account of the process of identifying the engagement together with a lucid narrative of the whole of the events connected therewith.

REGIMENTAL HISTORIES

History of the Royal Dragoons, 1661-1934. By C. T. Atkinson. (Maclehose & Co., Glasgow).

The Royal Dragoons were raised in 1661 to act as part of the garrison of Tangier, which by the marriage of Charles II to Catherine of Braganza came to the British Crown as a portion of the new Queen's dowry. After the evacuation of Tangier, some twenty years later the Royals took part in the war of the Spanish Succession, first in the Netherlands and then in Spain. They have since fought in almost every British campaign, including the South African and the Great Wars. The latter war is compressed into the space of some seventy pages, but is replete with detail including the account of a charge of the Royals with the *arme blanche* on 24th March, 1918.

This sumptuous volume is a model of scholarly research, the author having gone to the extent of compiling a detailed nominal roll of all officers who ever served in the Regiment.

The History of the Transvaal Scottish. By H. C. Juta (Advocate of the Supreme Court of South Africa). (Hortors, Ltd., Johannesburg). 7s. 6d.

In 1902 the Transvaal Scottish Regiment was raised as a unit of the Union of South Africa Defence Forces. It served as such in the Zulu Rebellion campaign of 1906, and again in German South-West Africa in 1914-15. By law it could not leave South Africa; consequently, when the South African contingent was raised for service in Europe during the Great War, the 4th South African Scottish was formed largely out of the Transvaal Scottish. After the Great War the Regiment, once more under its old title and form, took part in the suppression of the Rand Revolt of 1922.

Appendix A gives a summary account of the 4th South African Scottish's activity in France. Appendix B relates the story of the Scottish Horse, a mounted unit which existed in South Africa during 1906-07.

War Records of the 24th Punjabis (4th Battalion, 14th Punjab Regiment) 1914-20. (Gale & Polden).

This book, some eighty pages in length, treats solely of the activities of the 24th Punjabis during the Great War. In October, 1914, the Regiment was despatched to Egypt and served on the defence of the Suez Canal. Then in the following March it was transferred to Mesopotamia, when it fought through the campaign down to the capitulation of Kut. Then in March, 1917, the depot of the Regiment, expanded to a battalion, proceeded to Mesopotamia and fought there until the close of the War. After serving on the Black Sea, the Regiment returned to India.

The story is written much in the style of an official history of the War, viewed from the standpoint of a battalion. It is a clearly written account well illustrated with maps.

ADDITIONS TO THE LIBRARY

GENERAL

- CURZON; THE LAST PHASE, 1919-1925. A Study in Post-War Diplomacy. By Harold Nicolson. 18s. 8vo. (Constable & Co.). Presented by the Publisher.
- HOW TO LIVE IN ENGLAND ON A PENSION. By Mansor. 3s. 6d. 8vo. (W. Clowes & Sons, Ltd.). Presented by the Publishers.
- LAWRENCE OF LUCKNOW, 1806-1857. By J. L. Morison. 15s. 8vo. (G. Bell & Sons, Ltd.).
- LIFE OF WELLINGTON. By W. H. Maxwell. 6s. 8vo. (Bickers & Son).
- A POCKET VOCABULARY IN SIX LANGUAGES. By Captain James Willson of the Marines. 12mo. (Verndi and Hood, 1794).
- THE MILITARY AND NAVAL INTERPRETER WITH DIALOGUES AND VOCABULARY IN EIGHT LANGUAGES. By T. Bryon. 7s. 8d. 8vo. (Edward Stanford, 1856). The above two books presented by E. Lacy, Esq.
- A NEW VOYAGE AND DESCRIPTION OF THE ISTHMUS OF AMERICA. By Lionel Wafer. 1698. Edited by L. E. Elliott Joyce. 8vo. (Hakluyt Society).
- RISE AND FULFILMENT OF BRITISH RULE IN INDIA. By E. Thompson and G. T. Garratt. 21s. 8vo. (Macmillan & Co.).
- THE SUEZ CANAL: ITS PAST, PRESENT AND FUTURE. By Lieutenant-Colonel Sir Arnold T. Wilson. 15s. 8vo. (Oxford University Press).
- AMERICA AND THE NEXT WAR. By F. H. Simonds. 3s. 6d. 8vo. (Hamish Hamilton).
- EGYPT SINCE CROMER. Vol. II. By Lord Lloyd. 21s. 8vo. (Macmillan & Co.).
- LEADERS OF EUROPE. By Emil Ludwig. 18s. 8vo. (Ivor Nicholson & Watson).
- KING CHARLES II. By A. Bryant. 8vo. (Longmans, Green & Co.).
- MODERN OFFICE MANAGEMENT. By H. W. Simpson. 7s. 6d. 8vo. (Sir Isaac Pitman & Sons).
- AN ATLAS OF CURRENT AFFAIRS. By J. F. Horrabin. 3s. 6d. 8vo. (V. Gollancz).
- A HISTORY OF THE WORLD WAR, 1914-18. By Liddell Hart. 8s. 6d. 8vo. (Faber & Faber, Ltd.). Presented by the Publishers.
- IMPERIAL POLICING. By Major-General Sir C. W. Gwynn, K.C.B. 10s. 6d. 8vo. (Macmillan & Co.). Presented by the Publishers.

NAVAL

- NEW LIGHT ON JUTLAND. By the Rev. J. L. Postfield, M.A. 1s. 8vo. (William Heinemann, Ltd.). Presented by Sir John Thornycroft, K.B.E.
- PIRACY IN THE LEVANT, 1827-8. Selected from the papers of Admiral Sir Edward Codrington, K.C.B., and edited by Lieutenant-Commander C. G. Pitcairn Jones, R.N. 8vo. (Navy Records Society, 1934).
- NAVAL HISTORY AND THE CITIZEN. By Admiral Sir Herbert Richmond. 2s. 8vo. (Cambridge University Press). Presented by the Publisher.
- MODERN HISTORY OF WARSHIPS. By W. Hovgaard. 42s. 8vo. (E. & F. N. Spon, Ltd.).
- CORONEL AND AFTER. By L. Hirst. 7s. 6d. 8vo. (Peter Davies, Ltd.).
- DER KREIG ZUR SEE 1914-1918: DER HANDELSKRIEG MIT U-BOOTEN BAND 3. By Urno Spindler. 12 Rm. 8vo. (E. S. Mittler & Sohn, Berlin). Presented by the Publisher.
- THE VOYAGE OF THE BOUNTY'S LAUNCH AS RELATED IN WILLIAM BLIGH'S DESPATCH TO THE ADMIRALTY AND THE JOURNAL OF JOHN FRYER. With an introduction by Owen Rutter and Wood-engravings by R. Gibbings. 42s. 6d. (The Golden Cockerel Press). Presented by the Publishers.
- BARLOW'S JOURNAL, 1659-1703. Vol. I. Transcribed from the original manuscript by Basil Lubbock. 18s. 8vo. (Hurst & Blackett).
- CLEAR LOWER DECK. By S. Knock. 10s. 6d. 8vo. (Philip Allan).
- NAVIGATION AND NAUTICAL ASTRONOMY. 5th Edition. By Captain B. Dutton, U.S.N. 8vo. (United States Naval Institute, Annapolis). Presented by the Publisher.
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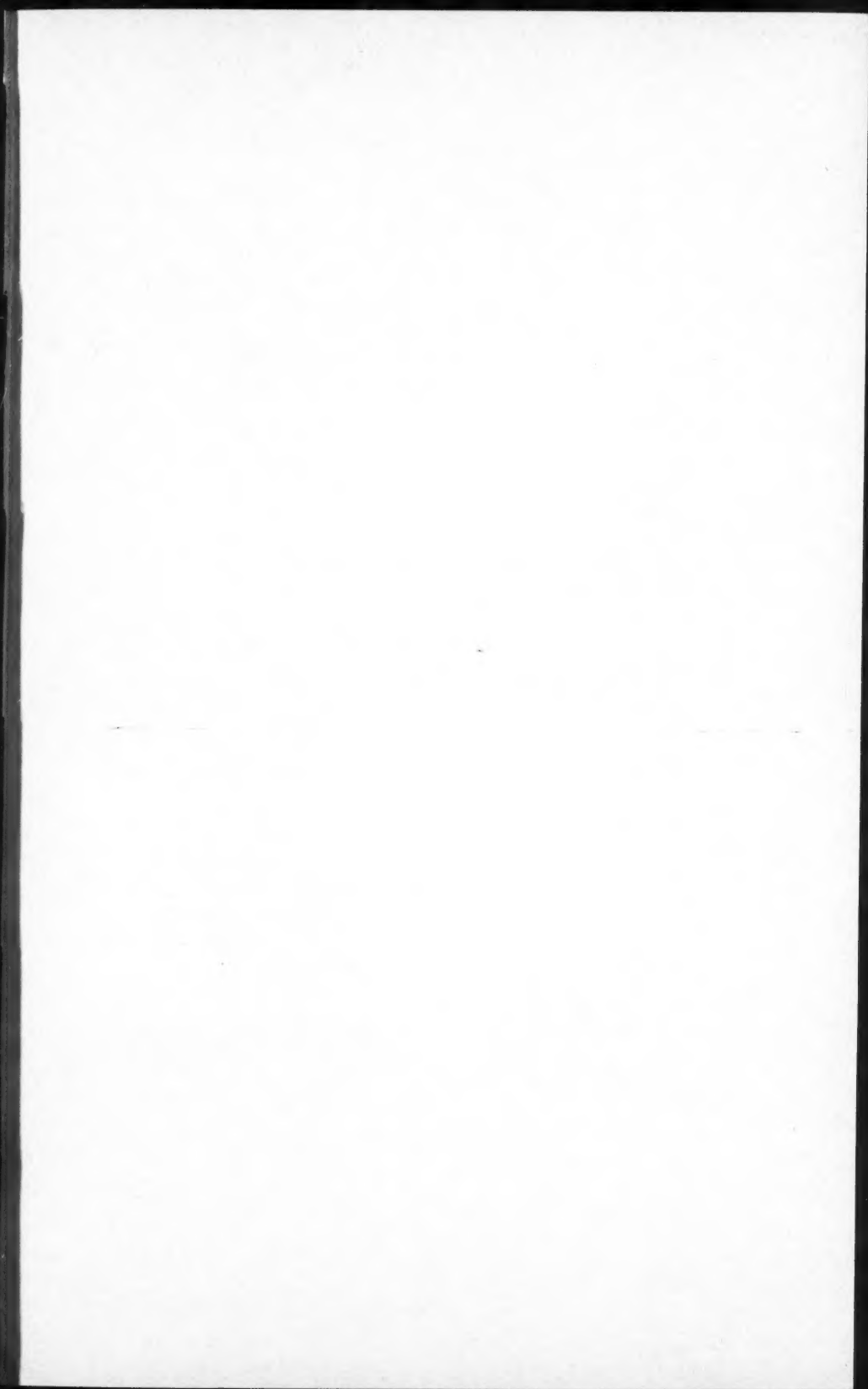
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